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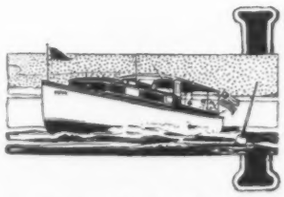
An Untouched Market for Steel

Sizable Tonnage of Sheets and Bars Will Eventually Be Consumed Each Year in Making Steel Motor-Boats

BY PRENTICE WINCHELL



IF anyone had told a carriage builder, back in 1895, that the days of the wooden buggy were numbered, he would doubtless have smiled and advised a good specialist plus a long vacation. One might expect the builder of wooden boats to react in the same manner today when the subject of metal motor-boats is broached—but the rapid changes in industrial processes have taught their lesson in the past thirty years and the builder of wooden boats is quite ready to admit that a revolution in his industry may be in the making.

And it *is* in the making. So rapid has its progress been in the past few years and so fundamental are the changes which it is effecting that it has not yet been fully recognized by boat-builders themselves.

It involves a basic change in methods of production, a definite step forward in distribution, and as a result of these, a change in the use of raw materials which should eventually mean the annual consumption of more than 100,000 tons of sheet steel in the place of wood.

Manufacture vs. Building

THE first step in this industrial revolution is a change from individual construction to mass production. Up to five years ago there were no boat manufacturers in the United States, in the strict sense of the word. From the first steam and naphtha launches, boats were individually designed and individually constructed. Perhaps a particular design would find favor and more boats would be built along similar lines, but the construction could hardly be called manufacturing. One or two attempts had been made to put on the market what were known as "standardized models," but as only a few of each were sold each year, mass production was out of the question.

But the possibilities in mass production were evident to the large motor-boat builders and they persisted in the standardized idea. By 1920 there were three or four so-called standardized boats on the market. Then, last year, two builders took the decisive step and entered the field with the first attempts at mass manufacture. One builder laid 50 keels of a low-priced standardized cruiser model and started to use uniform parts and interchangeable materials. Another builder of runabout or speed-boat models, familiar with automobile manufacture, started to cut his boats to pattern and adopt mass production methods all through his plant.

There was never any question as to the success of the application of production principles to small-boat construction and the prices which these methods enabled manufacturers to name brought buyers far in excess of the scheduled production. Before the year was over a dozen other builders were announcing competitive models, some were employing production principles, and before the industry well realized it, boat* manufacture was replacing boat building. The change had been in progress for many years, but the actual switch in method was a matter of months.

Enlarging the Market

HAND in hand with the change in manufacturing methods came a development in marketing which directly concerns the prosperity of the industry and its ability to consume steel. Up to a few years ago all boats were sold direct from the maker to the user, or rather, the user *bought* from the maker. Unless the purchaser got in touch with the builder little attempt was made to sell him, other than by advertising.

Today several leading makers are beginning to adopt the dealer-distribution method which has been so largely responsible for the rapid increase in the use of the automobile. Dealers will make an attempt to sell. They will not wait for the buyer to ask for a boat. And so, for the first time, the industry is in a position to get really acquainted with its market.

The Use of Steel

THESE fundamental changes have a direct bearing on the use of steel for motor-boats. They make the application of mass production methods profitable. And as a recent bulletin of the Sheet Steel Trade Extension Committee succinctly put it, "There is no construction that cannot be made of sheet steel—the whole question is whether the quantity required will justify the expense of designing and construction."

Mass production will emphasize the economy of steel and bring about its use in boat manufacture where the old methods of individual construction have hampered it. Of course, steel has been used for ship and small boat construction with complete success for many years. Thousands of steel ships and rowboats are in use but, from 20 to 60 ft. in length, the wood boat has had the field all to itself. One or two experiments have been made in years past with steel, but production on an individual construction basis was not feasible and the projects were abandoned.

That steel could be successfully used for frames, hulls, interior finish and bulkheads of motor-boats is not seriously questioned today by large boat manufacturers. Two large manufacturers recently told THE IRON AGE that the use of steel was probably only a matter of time. That the time is here is evidenced by information which this publication

*Used here to mean motor-boats from 20 to 60 ft. in length propelled by inboard motors.

has secured regarding the practical use of steel in motor-boat construction.

One company which has been manufacturing steel lifeboats for many years is now accepting orders for steel motor-boats of 40 ft. and up. Another large manufacturer is seriously studying the application of steel to his models.

Advantages and Disadvantages

"WHY was steel not used years ago?" will naturally be asked. Part of the answer is the small scale of production; part is that boat builders with large investments in wood-working plant and equipment had no desire to scrap that investment and make another for metal-working equipment. Then there are those who say that steel cannot be successfully used for motor-boat construction.

This attitude is perhaps best shown by the following query addressed to *Motor Boat*, a leading publication in that field, and the reply as made by George A. Smith in its columns:

Build Wooden Boat, Not Steel

"I contemplate building a 45-ft. steel cruiser, the entire boat, including frames, floors, hull, etc., to be of steel. I am familiar with steel shipbuilding and quite adept in riveting and welding, these latter considerations rather prompting me in the undertaking. I am writing to you to ask your opinion in the matter, since most of my friends have rather discouraged me against the building. Can't such a boat be built? I see no reason why not—in fact, I am rather led to believe that she could be more easily built than a wood boat and require less attention afterward as to upkeep, as she would not need to be calked nor repaired so often as the latter."

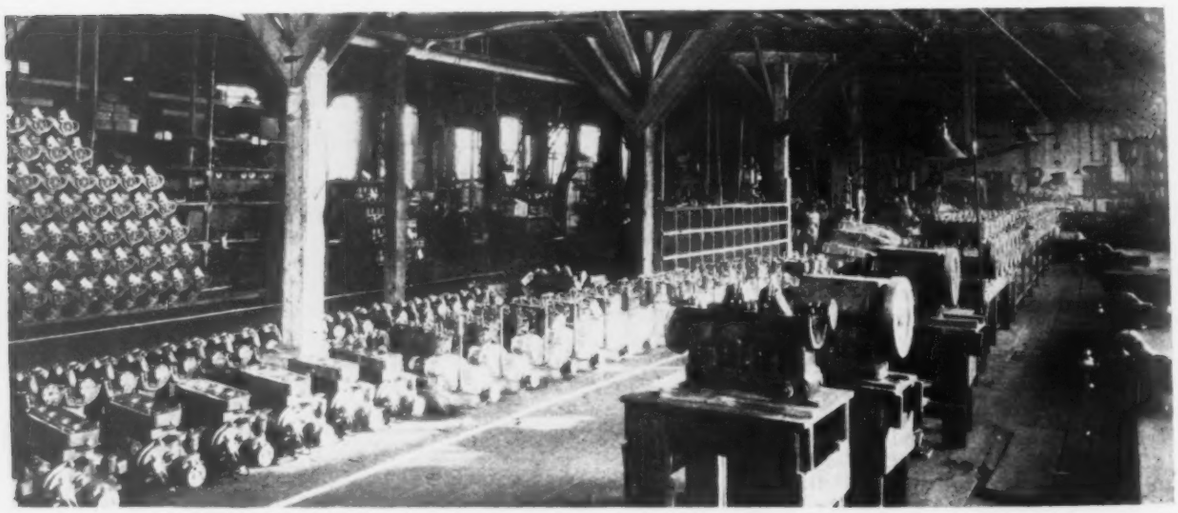
To this query Mr. Smith replied:

We can see no advantages to be derived by you in attempting the construction of a 45-ft. cruiser of steel. It can be done, but we do not think that she is either easier to build or likely to require less attention than the wooden boat. As to construction, no advantage is gained in a boat of steel when only 45 ft. in length, for you will have to sacrifice either the fairness or, at least, the shape of a seaworthy model, and construct the boat on a more simplified set of lines adapted to working the metal plates and shapes. Riveting and welding, while a great item so far as the actual labor is concerned, are small considerations in comparison with the difficulties you will experience in bending the frames, floors, stringers and plating.

Contrary to your opinion, we believe that, for a small steel boat in the same service and lasting the same length of time as a wooden boat, you will find that the former needs more attention. Constant scraping and painting is required, otherwise deterioration from rusting will quickly result, to say nothing of the marking of the hull sides by rust streaks. As the scantlings must necessarily be light, extensive corrosion cannot be permitted, for when a light steel boat once starts on the way in deterioration, little or nothing can be done to prevent it. Repairs are also not so easily effected as in the case of wood. For the same resulting appearance, a puncture of the shell in the wooden boats needs only a few new planks or possibly a filling piece, whereas the steel craft will need an entire new plate, otherwise the surface and plate edges will be unfair. And, speaking of fairness in the plating, we have yet to see a small steel boat which after, say, five years, still has a fair surfaced shell. As the gage of metal is necessarily light, it does not stand up well under bumps or knocks, consequently in a short time the plating takes on a wavy appearance between frames. Care in guarding against electrolysis is also required.

The Other Side of the Story

BUT this is hardly the whole story. The other side of the picture was shown to a representative of THE IRON AGE recently. It is a 32-ft. standardized steel motor-boat, designed and built on a production basis and shortly to be placed on the market at a price below that of a wooden boat of similar size, design and power.



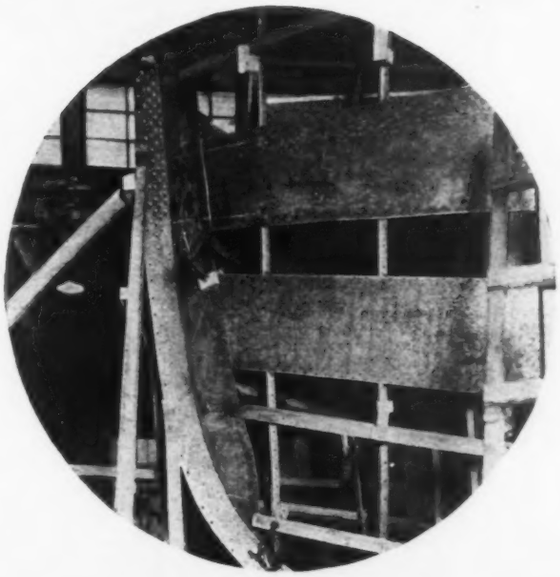
Excessive Cost of Power Plants Has Held Back the Motor-Boat Industry for Many Years. Marine motors have and still do cost, in many cases, from three to four times as much per hp. as automobile engines of equal or superior quality. Production methods and large scale output are just beginning to make their influence felt in the marine field, however. Here is a part of the production line of the Gray Marine Motor Co., Detroit, where nearly 1000 engines of one model will be turned out this year. This constitutes a record for marine motor production and should help to remove the high-cost-of-power handicap from the motor-boat industry

The argument of corrosion is overcome by the use of stainless steel for the entire hull. The question of appearance is answered by flush riveting and welding on the hull and the use of No. 10 and 12 gage sheets on 16-in. frame centers, a construction so rigid that any blow which would seriously dent this steel hull would undoubtedly break a wooden one.

Should a puncture occur the replacement of a single sheet would require far less time and cost considerably less than the repairs incident to a broken plank or two in a wooden boat.

As for lines, the boat is laid down on lines exactly similar to those of one of the most successful wooden models. Frames are cut to template from ½-in. angles and bar stock. No more care is needed to prevent electrolysis than is at present required to prevent corrosion of cylinder blocks on motors, shafting, etc.

The completed boat is far stronger than a wooden construction, lighter (which means a saving in power or a gain in speed) and, even on a small production basis, will cost considerably less than a wooden boat of the same size. Finally, it is fireproof. Where gasoline is used on a wooden boat, there is always the danger of a sudden fire or explosion, which means constant danger and higher insurance.



ago) and with the increasing population along our seaboard and river States, it is not hard to visualize a 75,000 or 100,000 annual market.

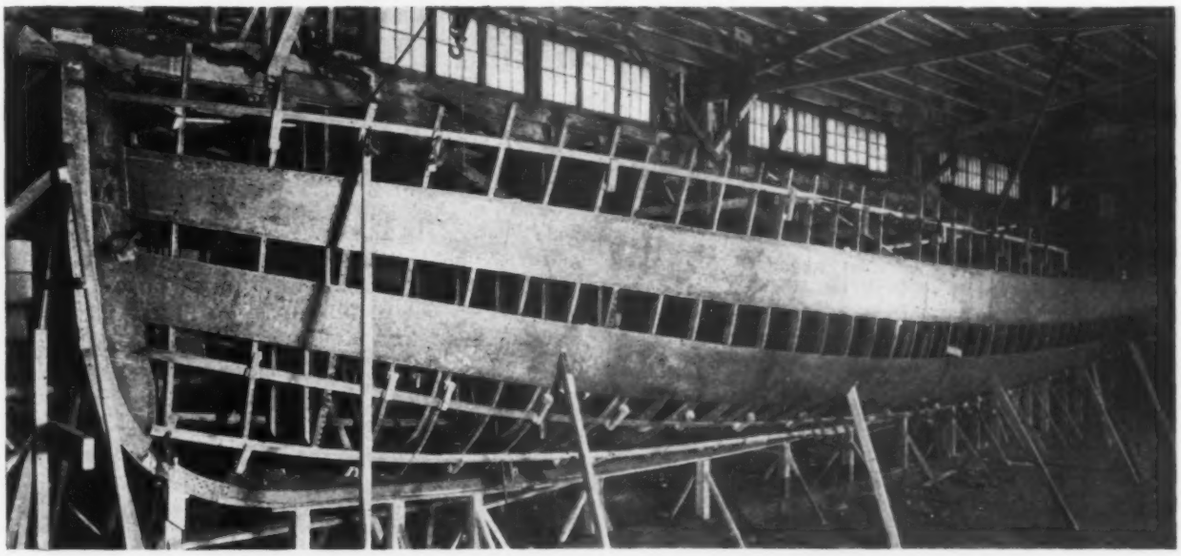
What Does This Mean to the Steel Industry?

IN the 32-ft. all-steel model previously mentioned some 2½ tons of steel are required, exclusive of motor, fittings, etc. Approximately 1 ton of stainless steel is employed and about 1½ tons of standard bar stock for frames, etc.

Larger boats will of course use much more in proportion, but even the smallest steel cruiser can hardly be made using less than 2 tons of steel and the typical 20 to 30-ft. runabout will probably use close to a ton, when steel construction has been adapted to these models.

Here is a market for steel and especially for stainless steels. It is a market that should interest sheet manufacturers, makers of riveting and welding equipment, metal-working tools and eventually machine tools.

For thirty years wood has been supreme in the motor-boat field, but the day of the steel motor boat is already here.



How a 55-Ft. Steel Motor-Boat Was Constructed Last Year at the Plant of the Welin Boat & Davit Corporation, Long Island City, N. Y. Standard Apollo sheets were used and seams were cold riveted. This boat, which is now in successful operation, is fireproof, in addition to being stronger and lighter than a wooden boat of similar design

How Large Is the Market?

IN 1924 it was estimated* that there were 700,000 motor-boats in use, exclusive of the small boats using outboard motors. To place the number at 750,000 today requires a conservative effort. There are no reliable figures regarding the length of life of the average motor-boat, but it seems likely that it is from 15 to 20 years. Thus the annual replacement market should be somewhere in the neighborhood of 35,000 boats a year. That this replacement ratio will be shortened as newer and less expensive boats come into the market is merely a leaf taken out of automotive experience.

It is impossible to estimate the present annual production of motor-boats, but it is noteworthy that in the five years from 1919 to 1924 the number of registered boats (those in use on Federal waterways) showed a 100 per cent increase. With the growing congestion in large cities and the growing prosperity, with the steadily lowering of boat prices (a cruiser selling for $2,500 today would have cost double that amount ten years

*Commerce, Finance & Industry, August, 1924, page 10 et seq.

Thus Far, Steel Motor-Boats Have Been Laid Down on Lines Originally Designed for Wooden Construction. It is possible that the many advantages of steel production will result in radical changes in motor-boat design, just as carriage construction was revolutionized by the introduction, nearly a generation ago, of the "horseless-carriage"

Recent Developments in Rail Steel

Large American Railroad Using a Special Manganese Steel—Transverse Fissues As Viewed in Washington

POSSIBLY new light on the steel rail problem as a whole, and on transverse fissures in particular, may be contained in the two articles in the following pages.

The patent specifications and the claims for a new steel—a low, or special, manganese steel—are outlined in the first. The new steel has been tried for several years in the track of a leading American railroad and much is claimed for its properties. Among other things, the transverse fissure is said to be minimized by its use. It is also pointed to as solving other problems of rail failures and rail difficulties. This rail has attracted sufficient attention so that one or two other roads have introduced it in their tracks on a fairly large scale for trial pruposes.

The other article is an interview with one of the engineer physicists of the Bureau of Safety of the Interstate Commerce Commission, who outlines the latest aspects of the transverse fissure problem, also what has been learned thus far and what the remedy is, if any.

A Special Manganese Rail and Its Advantages

BASED upon the experimental use for several years of a rail of special composition by the Delaware, Lackawanna & Western Railroad, a United States patent (No. 1,568,822, Jan. 5, 1926) has been granted to Howard J. Force, engineer of tests of that railroad, Scranton, Pa.

The primary object of the invention, Mr. Force states, is the provision of a rail steel which is not only superior in physical properties, whereby breakage, rapidity of wear and disintegration are reduced, but also whereby transverse fissures are very materially eliminated. Another object is also the avoiding of certain difficulties and losses ordinarily encountered in the manufacture of steel rails under present processes. He states that a further object is to secure a steel of superior quality which makes it possible to reduce the size of rails, if desired.

The inventor claims that the steel which he has evolved, as described in the patent, will increase the length of the life of the rail, not only as to wear, but also that it will materially reduce disintegration and piping or seamy rails. He also claims that a rail made of this steel will withstand the standard drop testing machine with greater deflection and will show a higher average hardness and stiffer section than the present steel rail.

Greater Loads on the Rails

In the last few years, Mr. Force points out, the average speed and weight of cars in railroad transportation have been materially increased. There has also been an increased use of steel wheels, which decidedly increases the wear on rails with the result that impact and shock on the rail have proportionately increased. In order to meet these increased requirements and burdens, the weight per yard of rail has been decidedly augmented, until at the present time it is at least double the weight that it was a few years ago.

Many attempts have been made in various sections of the rails to meet these changing conditions; for example, by increasing the carbon content up to 0.85 per cent with a manganese content as high as 0.75 per cent, with the result that much segregation has taken place, due to the carbon and manganese percentages. This, he claims, has rendered the rail brittle, due to segregation, and has caused many pipes in the steel at the same time. He states also that heavy failures have been caused by this brittleness, especially at low temperatures.

In his opinion, difficulty has also been encountered in rolling the heavier section, especially with the high carbon content. Furthermore, that the allowable range, within which the rolling temperature must be confined, is narrow, and he states that it is well known that it is difficult to maintain such uniform temperature conditions. Should rails be rolled outside of such temperatures, crystallization of the steel, or defects which later possibly develop into transfer fissures, are produced. This is due to the low elongation of the steel brought about possibly by its chemical composition, in the opinion of the inventor.

Mr. Force claims that he has overcome the difficulties above mentioned and accomplished the aims involved by increasing very materially the manganese content of the steel rail, and also by varying this manganese percentage according to the carbon content. The chemical specifications adopted as the old standard practice, depending upon the weight per yard, are as follows:

> The carbon must vary from 0.30 to 0.47 per cent in the lighter weights per yard up to 0.62 to 0.85 per cent carbon for the heavier weights. The manganese shall vary from 0.60 to 0.90 per cent in some cases and from 0.80 to 1.10 per cent in others. The phosphorus shall vary up to 0.10 per cent, with a maximum silicon of 0.25 per cent.

Relation of Manganese to Carbon

Mr. Force claims that no effort has ever been made to vary the manganese in proportion to the carbon, and that he has found that such a variation in certain proportions gives excellent results. In this respect his recommendations are as follows:

With a carbon content of 0.50 to 0.60 per cent, the manganese should be about 1.50 per cent. Where the carbon runs down to a lower range, that is, at 0.30 per cent, the manganese may run up to as high at 1.90 per cent. It is, of course, understood, he says, that in the manufacture of steel rails considerable limit must be given to the various elements in order to make the process commercial, but that these limits must not be so reduced as to affect the wearing qualities of the rail. He points out that, with the proper carbon and manganese content, a steel of high tensile strength and elastic limit with a good elongation and reduction of area is produced, and one which contains little or no crystalli zation. Heat treatment of steel of this kind is not necessary, he claims, thus decreasing the cost of the steel.

Special Properties of the Manganese Rail

In discussing some of the special qualities of this grade of rail steel, the inventor states that it has been discovered that the large percentage of manganese has a pronounced neutralizing effect upon the sulphur and tends to keep both the sulphur and the phosphorus in combination, thus producing an unusually dense and

tough grade of steel. These conditions, in his opinion, increase the wearing properties and render the steel easily rolled, provided the temperaturs are maintained at the recommended standard practice. He also claims that, by the used of such a steel, a considerably smaller section can be employed with entire safety, more so than when a low manganese and high carbon content is used. By this combination, he claims that he eliminates all methods of heat treatment. Should, however, such treatment be found necessary to produce a still higher grade of steel, this particular type of rolled steel lends itself most readily to heat treatment.

The use of a steel, in the proportions of manganese and carbon outlined, renders it unnecessary to utilize alloys, such as molybdenum, chromium, nickel, tungsten, titanium and vanadium, thus rendering the process simpler and less expensive. Mr. Force also points out that a greater degree of uniformity may also be preserved, or in other words, a more homogeneous and reliable steel produced.

In the production of this steel, it is recommended as exceedingly important that the manganese all be added to the furnace before the steel is teemed into the ladle. The inventor states that it has been the practice to add a very large proportion of the manganese to the ladle, but this has been done as a rule only when a steel of much lower content is being manufactured and with the result that the steel, in many cases, is unsatisfactory.

Molybdenum and Manganese

Mr. Force also states that it has heretofore been thought necessary to employ molydenum when higher percentages of manganese are used, so as to offset the so-called undesirable effects of the manganese, especially when the steel is subjected to heat treatment. This he regards as unavoidable. He states that it has also been a common misapprehension that, although the manganese increased considerably the tensile strength of the steel, it did so at a loss of the reduction of area and elongation, and that the manganese segregates, which condition was popularly supposed to be corrected by the addition of molybdenum.

After making several thousand tons of steel, according to the method herein outlined, "I find," says Mr. Force, "that these conclusions are in error and I am enabled to dispense with the use of molybdenum, thus saving considerable expense and annoyance and accomplishing the manufacture by simpler and more direct methods. Possibly if the percentage of manganese is raised, the molybdenum may be necessary, but so long as this element is kept within the range referred to, only uniformly excellent results in the product are found."

It will be readily apparent, concludes the inventor, that the foregoing steel will show a very large increase in wear and safety over the standard steel rails as now produced, this manganese steel having a marked increase in resistance to impact and shock and to alternating stresses without crystallization. Having thus described his invention, the inventor's claims are put in the following form:

1. A railroad rail made of steel containing carbon, from 0.30 to 0.85 per cent; manganese, from 1.15 to 1.90 per cent; phosphorus, not to exceed 0.05 per cent; and silicon, not to exceed 0.30 per cent.

2. A railroad rail made of steel containing carbon from 0.30 to 0.85 per cent; manganese from 1.15 to 1.90 per cent; phosphorus not to exceed 0.05 per cent; silicon not to exceed 0.30 per cent, and other elements not to exceed 0.25 per cent each.

Transverse Fissures—Discovery, Cause and Remedy

WASHINGTON, Jan. 30.—The rail problem is again the source of more or less animated discussion, both in the United States and abroad. The very fact that human life itself, as well as the efficiency of transportation, depends upon the quality of the rail has caused the metallurgist, engineer, physicist and chemist to make the subject one of utmost study and research. Experiments have been made almost without end in the use of various mixtures of steels and under all kinds of tests in order to develop a rail that would meet complete requirements.

Bureaus of safety have been set up by the States and the Federal Government and they have cooperated with steel manufacturers and railroad representatives. Great strides in improving the product have been made since the day of the puddled iron rail to keep up with the enormous demands caused by heavier traffic and equipment.

Origin of Transverse Fissures

Studies of efforts made to develop the perfect rail show clearly that every condition has been given painstaking study. The result is the high-grade rail of today. Despite the many problems that have been overcome, there yet remains the outstanding problem of transverse fissures.

Transverse fissures were first brought to general notice by James E. Howard, engineer physicist of the Bureau of Safety of the Interstate Commerce Commission, in a report to the commission on an accident which occurred Aug. 25, 1911, at Manchester, N. Y., on the Lehigh Valley Railroad. From that time to the present this subject has been given intense study by the Bureau of Safety together with the railroads and the steel mills. Exhaustive questionnaires have been prepared and answered and still are being circulated in an effort to develop any additional information that may be obtainable.

At the Bureau of Safety the subject was interestingly discussed recently with the Washington representative of THE IRON AGE. It was stated to be an important question how to attain increased or maximum resistance and durability in rails, how to ascertain what composition of steel, what physical properties, and what structural state is most favorable to promote endurance against the formation of transverse fissures.

The problem of transverse fissures so far seems to be little known outside the boundaries of the United States, while within its territory they are prevalent chiefly where density of traffic is greatest. It was pointed out that there is no inherent reason why they should not be displayed in any country. Land transportation systems, it was explained, are the same in all parts of the world where loads are carried on wheels but differing in intensity of the strains and stresses involved. In this connection, a report of the commission in 1923 said:

"Internal strains are set up in all grades of steel under the action of wheel loads. They were set up in puddled iron rails. The highest strains yet encountered were present in a very early iron rail of pear-shaped head. Internal strains are set up alike in low-carbon as well as in high-carbon rails. The necessary state of strain for the formation of an internal fracture (internal compression in the zone of metal at the top of the head) is acquired by every rail under service conditions. From what is known of the manufacture of foreign rails and the conditions of their acceptance, it does not seem probable that practical immunity from transverse fissures in Great Britain and on the Continent is due to superiority in the metal of the rails there used. Moderate wheel loads are a significant feature.

"Messrs. Sanberg of London, England, do not seem to regard the formation of transverse fissures as a problem seriously confronting English railroad practice. Benjamin Talbot is quoted as having given emphatic expression to his views on the subject in 1912, when he said: 'One explanation was that in Great Britain the rails were not treated in the barbarous fashion customary in the United States.'"

Certain troubles can be overcome by changes in some parts of the cross section or by slight increase of weight, it was said at the bureau. A rail can be strengthened at its base by an increase in the depth of the base and change in the size of the fillets between the web and flanges. So the bureau would not call that a real rail problem. It is rather a physical question.

There are other matters, such as slag inclusion in the interior of the steel, which lead to split heads. All steels are more or less seamy and perhaps the seaminess cannot be entirely eliminated, in the estimation of the bureau. The weight of the rail does not tend to the elimination of seamy lines but increase in the weight of the rail from 60 lb. about 40 years ago to the 136-lb. rail of today, has strengthened it as a girder and toward resisting the internal seaminess, it was pointed out.

The Vital Feature Today

The vital feature of the rail situation is held by the bureau to lie in the impinging pressure between the tread of the wheel and the head of the rail. With the great advance in the weight of the rail, it has left this crucial feature without amelioration. That is, with increased wheel load, there is a correspondingly increased impinging pressure between the wheel and the rail. High impinging pressure represents the crux of the situation and wheel loads have reached such a stage that no known grade of steel is capable of enduring these pressures without a menace to the safety of the track, according to the bureau.

Fractures of rails, due to transverse fissures, have appeared in great numbers since they were first brought to notice in the report of the Interstate Commerce Commission, of Aug. 25, 1911. At that time they were few in number. In fact from their infrequency, some engineers were loath to believe that such fractures had been witnessed. A compilation of such fractures made by the Bureau of Safety, published under date of April 23, 1923, showed the location by mile posts of 8000 transverse fissures rails. The number of known fissures now exceed 15,000.

No Steel Immune from Fissures

Apparently wheel loads have reached such a stage that no steel is immune from this type of fracture, it was said at the bureau. Wheel loads in locomotives have increased from 20,000 to 35,000 lb. per wheel, and wheel loads, now under car equipment, not infrequently exceed the weights on the driving wheels of engines of early years.

The bureau does not infer that the onus of high impinging wheel pressures attaches to motive power alone but responsibility in a very considerable degree, it was said, depends upon the wheel loads of the equipment. The proof of this was declared to be shown by the prevalence of transverse fissures in rails which carry the greatest tonnage under loaded cars. The engines and light weight cars which pass over other rails do not cause the development of transverse fissures to a degree approaching those of the heavy traffic rails.

Reduction of Wheel Loads Only Relief

Apparently the only real relief from the present situation, in view of the bureau, is a reduction of the wheel loads in which those of the equipment are important factors. Reduction of wheel loads is a critical matter, however, concerning which little encouragement is received.

Steel mills have furnished all grades of steel, according to specifications presented to them by the railroads, and the material has passed all service inspections without overcoming this type of fracture. So far as known, mill conditions, including the composition of the rail and fabrication in the rail mill, have been properly met but they do not overcome the display of transverse fissures. Diligent research has not attached responsibility for the formation of transverse fissures to mill conditions.

It is the general experience, however, that the harder rails, those of high carbon content, are more prone to the display of transverse fissures than those of medium hard steels. This, of course, is not a mill proposition, but one having to do with specifications. The heaviest rails rolled are not immune from the display of these fissures. Evidence leads in one direction, and it might be said in one direction only, which is, that responsibility rests on the overwork to which the rails are subjected. This, in turn, depends upon the intensity of the wheel pressures.

Unification of Wire and Sheet Metal Gages Proposed

The Society of Automotive Engineers has requested the American Engineering Standards Committee to take up the unification of wire and sheet metal gage systems in order to arrive at a national standard system of designating the diameters of metal wires and the thicknesses of metal sheets.

In the request submitted by the automotive engineers there are listed 13 gage systems now in use in this country. For example, the "American wire gage" or "Brown & Sharpe gage," which is widely used for non-ferrous wires was devised in 1856 by the founders of the Brown & Sharpe Mfg. Co., Providence, and adopted by the Association of Brass Manufacturers in 1857. The name "American wire gage" is of a later date. Steel wire, however, is indicated by various systems of gage numbers which not only differ from the "American wire gage" system for copper wire, etc., but also differ from each other. Thus, according to present practice in this country, a copper wire of No. 6, "American gage," has a diameter of 0.162 in.; a steel wire of No. 6, "United States steel wire gage," has a diameter of 0.192 in.; while "Stubs's steel wire," No. 6, is of 0.201 in. diameter, and sheet steel according to the "United States standard gage," No. 6, has a thickness of 0.1992 in.

This wide diversity is regarded as necessarily leading to confusion, errors frequently occurring in the filling of orders and in industrial work in general. Some organizations, in order to avoid confusion, designate wire and sheet metal sizes exclusively in decimal fractions of an inch.

A conference of all industrial groups interested in this problem will be called in the near future, to discuss the desirability and possibility of unifying the various existing gage systems into a national system, or systems.

Connected closely with the question of the designation of wires and metal sheets is the feasibility of thinning out the series of diameters or thicknesses actually listed in the catalogs of the different trades. Inasmuch as a procedure of this nature involves the element of "simplification," the American Engineering Standards Committee and the division of simplified practice of the Department of Commerce have made arrangements to cooperate. The latter body will undertake to bring about production surveys in the trades concerned, in order to find out the relative importance of wires and sheets made to the several gage numbers.

Suggestions relating to the general technical problem, or any of its phases, are invited by the American Engineering Standards Committee, 29 West Thirty-ninth Street, New York.

Heavy Demand for Metal Furniture

YOUNGSTOWN, Jan. 30.—Night shifts are being instituted in all departments by the General Fireproofing Co. to meet increased demand for metal furniture, filing cabinets and steel shelving. The company states that gross business received to date in January is ahead of that for the corresponding period in the preceding month. It is behind in production and shipments. Last year the company sold its metal fireproofing division to the Truscon Steel Co., and there are unconfirmed reports that its steel furniture departments may be sold during this year to a competitor.

Internal Combustion Engine Valves

Results of a French Investigation to Determine the Alloy Steels Best Fitted to Meet the Severe Conditions

VALVES for airplane engines are discussed in a recent issue of the *Revue de Metallurgie*. The author, M. Mahoux, first analyzes the functions of the valves and points out, in detail, the working conditions, particularly of the exhaust valves.

The extensive softening of the head and upper part of the stem, due to the high temperatures, is shown by actual determinations. For instance, with a chrome-tungsten steel, fairly low in tungsten, quenched in air from 1650 deg. Fahr. and reheated to 1030 deg. Fahr., the Brinell hardness is 363 to 444, corresponding to about 199,000 lb. per sq. in. tensile strength. After sufficient running in an average motor the head is reduced in hardness to what corresponds with about 118,000 lb. tensile strength, showing that the steel has been raised to at least 1300 deg. Fahr., and that the gases surrounding the head may have been at a considerably higher temperature. Careful tests made with thermocouples, the fusion of metals and various salts have shown that the metal reaches a temperature of 1470 to 1520 deg. Fahr. in engines with high compression.

If the metal is not sufficiently resistant to heat, several things may happen. The head upsets and the valve elongates, so that constant regulation is necessary to give proper contact between valve and seat. Also the expansion of the head is not regular, so that the seating is not continuous. The hot gases, therefore, escape in certain places and the unequal expansion is increased. This unequal seating also brings about bending stresses where the head joins the stem, so that finally the valve may fracture at this point, as shown by examples pictured in the original paper.

During operation there is pressure exerted by the stem of the valve on the guide and, at the high temperatures, the coefficient of friction is considerably increased, so that the work needed to open the valve is greater. This increased friction has brought about fracture in a number of cases.

To guard against this, the metal in the stem should have a high elastic limit. Further, if the metal of the stem is not hard enough at the operating temperatures and if the metal of the guide is not properly chosen, there may be sticking. Frequently the valve does not close or closes only slowly. This naturally brings about faulty running. The two valves in each cylinder may be open while gases are being drawn into the cylinder, on the one hand fresh gas, on the other burned gases at high temperature; the mixture burns and may flash back to the carburetor and thereby cause grave accidents. Various other causes of failure are pointed out and valve requirements mentioned; then the author gives the results of tests on various steels. The analyses of these steels are given in the table.

Analyses of Steels Used; Percentages

	A	B	C	D	E	F	S	U	SiCr
C	0.39	0.48	0.51	0.72	0.70	0.51	0.42	0.08	0.44
Mn	0.19	....	....	....	....	....	....	....	....
P	0.019	0.028	0.017	0.009	....	0.018	trace	0.013	0.012
S	0.02	0.02	0.034	0.018	....	0.052	0.02	0.038	trace
Si	0.18	0.41	0.24	0.58	0.34	0.68	0.12	0.13	2.67
Ni	4.12	....	45.00	trace	....	....	....	22.64	....
Cr	0.35	3.46	10/14	4.96	5.00	2.08	2.47	11.60	9.04
W	2.54	15.61	....	17.15	17.00	13.00	15.87	10.97	....
Va	....	....	....	0.88	0.50	0.78	....	....	trace
Mo	....	....	....	....	....	....	....	....	0.17

The first steels were air quenched, then reheated to 1025 deg. Fahr., tensile strength 185,000 to 200,000 lb. per sq. in. With steel A the head deformed and the valve broke at the junction of head and stem. There was gripping of the stem, with removal of part of the guide metal, and some breaking at the end of the stem. Steel B did not show quite such bad head deformation nor was the gripping of the stem so marked. There was some chipping of the seat of the valve and breaking at the end of the stem.

Steel C was given no treatment after forging. From the Brinell hardness, the tensile strength was about 114,000 lb. per sq. in. At the end of several minutes of running the valves stuck so badly that they could not be opened. This was the result of several tests. The guides up to now had all been of soft steel. The valves of steel D were furnished, heat treated by the maker. The Brinell hardness was 270 to 320. The heads stood up well and gave good seating during a 50-hr. test. The stem acted admirably and, at the end of the test, the stem and the guide had a glasslike surface. The guide was of phosphor bronze of very good quality.

The author does not think any of these four steels ideal, partly due to the brittleness. Steel D showed 2.5 kg.-m. under the shock test, and he believes 4 to 6 should be a minimum. However, the results with steel D did not show a lack of resilience.

Valves were then tried of steel U under the same mounting conditions as steel D, that is, bronze guides, first idling for 6 hr. and normal running for 5 hr. One stuck at the end of the first hour and all showed removal of considerable guide metal. The heads stood up fairly well, but the test was of short duration. The seats were badly attacked by the hot gases.

Steel E was given a 50-hr. test and, at the thirtieth hour, one of the valves broke near the threaded end. It is probable some of the forging stresses had not been removed by the heat treatment. The other valves of this steel stood up about the same as steel D, but a little inferior.

Valves of steel S were tested at the same time and were not quite so good as the E steel. The heads kept their shape, but the steel seemed to scale a little more. Up to this time steel D had given the best results and, after 50-hr. tests, the order of excellence seemed to be D, F, E and S.

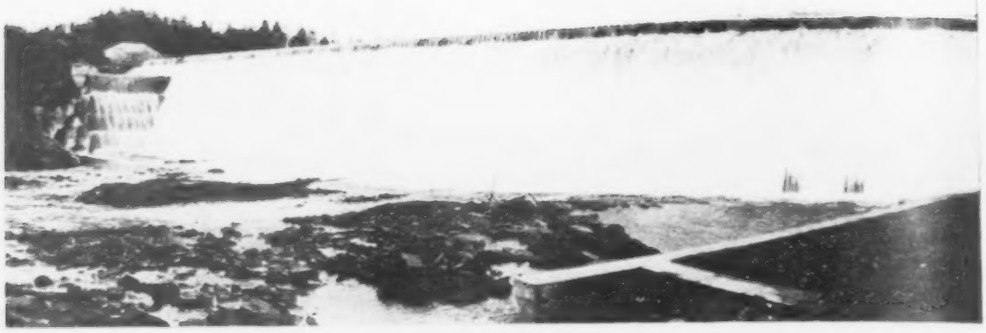
In these four steels, analysis shows considerable difference in vanadium and silicon, and those nearest to D in these two elements gave the corresponding results. The best treatment for steel D seems to be to air quench to 1550 deg., reheat to 1100 deg. Fahr., with the Brinell hardness from No. 270 to 320, but approaching 320.

Following the tests given above, a series was run with a steel high in silicon and chromium, but no tungsten, the molybdenum varying with the samples but in no case over 0.50 per cent. The transformation point with the Chevenard apparatus (expansometer) was 935 deg. C. (1715 deg. Fahr.). No shock tests were made, but the bending angle was much superior to that of steel D. The specific gravity of this sil-chrome steel is 7.62; that of steel D, 8.69. The heat conductivity is less, possibly because of the high silicon. The test ran for 30 hr. in series of 10 hr., the last 5 hr. being with the motor wide open, which is a particularly severe test.

The dimensions of the engine are given and the horsepower is calculated at 452. The valves stood up remarkably, markedly superior to those of all the steels tested before. The heads were in perfect condition, and the seats excellent. The Brinell hardness was taken after the run and did not seem to have changed.

The article closes with reference to the care needed in forging so as to have a proper macrostructure.

G. B. W.



In Times of High Water There Is a Certain Wastage of Water Over the 490 Ft. Length of the Dam

Hydro-Electric Power

Stanley Works Installs Water Power Units to Replace Most of Its Coal Consumption

LATE in November water was first turned into the wheels of a new power plant of the Farmington River Power Co., a subsidiary of the Stanley Works, New Britain, Conn. It had long been in the minds of the Stanley management that the development of its own power, by the use of water otherwise going to waste, should be undertaken. The new plant at Rainbow, on the Farmington River, about ten miles above Hartford and some 23 miles from New Britain, is the result.

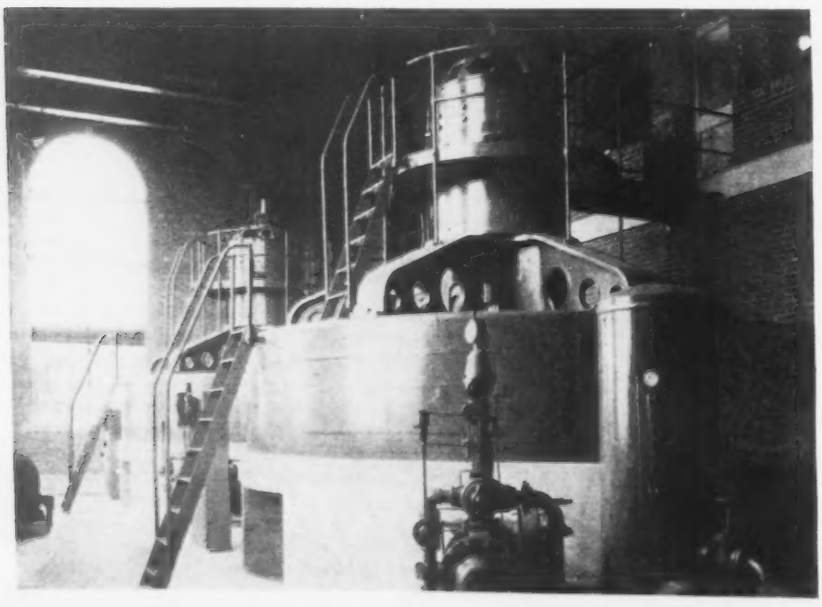
Back of a concrete dam, 490 ft. long and 47 ft. above the river bed, a body of water is impounded, which runs 3½ miles up the river and just about reaches the tail race level of a small power development at that point. This means that the present dam is as high (when its flash boards are in use) as it can be made. The area of the pond thus created is 239 acres. It is confined within the narrow valley of the Farmington River and has an average width of 560 ft. The total drainage area supplying water to the pond is 600 sq. miles.

Power is supplied by two vertical-axis generators of 5000 kva. each, which represents 4000 kw. at 80 per cent power factor. These are operated by two turbines furnished by the S. Morgan Smith Co., York, Pa., and rated at 6680 hp. on 60 ft. head. Ordinarily the maximum head available is about 58 ft., this being obtained when the pond is at full level with flash boards in place. The water level in the tail race is approximately 10 ft. lower than the bed of the river at the dam. This tail race was carried about one-half mile down stream to obtain the additional 10 ft. of available head.

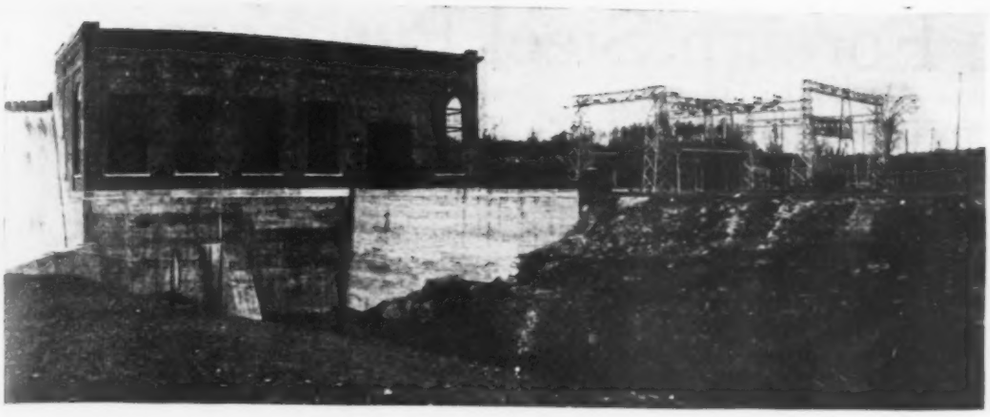
Each unit in the plant is a duplicate of the other. They are the first generators of this size made by the General Electric Co. in which the frame is of steel plate (about 1 in. thick), with all seams welded. The rotating field of each unit is carried on a Kingsbury thrust bearing located above the generator and immediately below the exciter. Two steady bearings are used to keep each machine fairly centered, one being between the generator and the turbine, while the other is above the exciter. The lower bearing is of lignum vitæ, lubricated with water.

It has been the aim to make the operation thoroughly automatic and at the same time proof against damage from either internal or external electric disturbances. So far as the automatic features are concerned, the equipment includes Woodward governors for controlling the opening of the water valves to suit the power needs; time clock control for starting and stopping without necessity for the presence of an attendant; devices for throwing the units on the line successively as they reach synchronous speed and for adjusting them to synchronism after they approach it. The switches may be so set that, when a pre-determined load on the first machine is exceeded, the second unit will be started up automatically in the same way.

Safety devices include cut-out switches which operate on a persistent overload of a definite amount, differential protection switches which will trip the machine if either the field or the armature has a short circuit and the usual protection against lightning or other outside disturbances. The interlocking is such that the second machine cannot be started up, except



General View of the Two Generators, with Their Exciters on Top. Control room, above at right, has direct connection with the top of each machine. One of the Woodward governors appears in foreground



Power Plant, with Outdoor Transformer Station. In foreground, below the power house, is the tail race, 10 ft. below river level

for Metal Working

Arranged for Tie-Up with Network of New England High-Tension Power Circuits

when both banks of transformers are in circuit. It is possible to use a single machine through both transformer sets, but not vice versa.

Brakes applied by air pressure will stop rotation in some 30 sec. These are mounted on the spider supporting the armature coils and act upon a slip ring at lower edge of the field member. A small air compressor in the basement operates automatically between 85 and 105 lb. per sq. in. When the air reservoir pressure drops below the lower limit the machine starts up; at the higher pressure, it shuts down. A 1½-kw. motor-generator set in the control room furnishes such direct current as is needed for station use.

Economies of Operation

Ordinarily the power derived from this plant will be sufficient to furnish all that the Stanley Works, including the Stanley Rule & Level plant, will require. It will be necessary to continue generating a certain amount of power by steam in New Britain, however, because exhaust steam is needed in some of the manufacturing processes, particularly pickling and plating, and in cold weather it is needed also for heating the buildings. Consequently the steam plant will not be abandoned. It will, however, be run only enough to furnish such steam as may be required under the above schedule and as a standby or auxiliary source of power in times of low water.

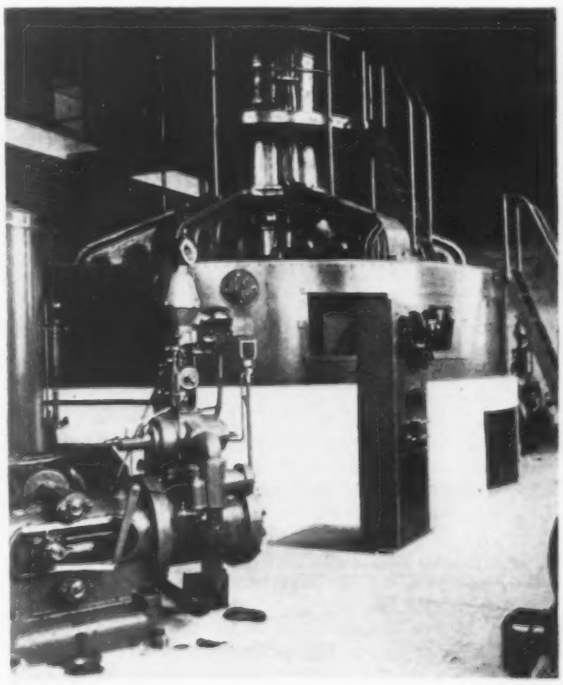
About 12,000 hp. may be transmitted over the lines from Rainbow to New Britain at maximum load. Power current (3-phase) is stepped up from the 2300 volts of the generators to 66,000 volts for transmission. This high voltage corresponds with that prevailing throughout the territory for distance transmission by public utility network lines. It is possible, therefore, and arrangements have been made for it, to interchange power with the utility companies. This interchange takes the form, over the week-ends, of feeding power from the Rainbow plant into the power company lines at times when the Stanley Works do not take power. Conversely, power from the utility lines may flow in the other direction when the output of the new plant is insufficient for the demands upon it.

In times of ordinary low water the pond will be used in the same way as the gas holder of a gas company. Water will be used during the day to furnish power and the level in the pond correspondingly lowered. It is estimated that 10,000 kwhr. means about one foot of water level (10,000,000 cu. ft. in all). During the night, when power is not being generated, the natural flow of the stream will replenish the pond supply.

Utilization of power thus otherwise flowing to waste in the river will make it possible to dispense with the burning of many tons of coal. This will represent a saving in fuel purchases, offset in part, of course, by the carrying and operating charges of the hydro-electric plant. At the same time it will relieve a certain amount of congestion on the railroads and will help in clarifying the atmosphere in the city of New Britain.

Construction was done by the Power Construction & Engineering Corporation, Worcester, which acted also as consulting engineer. The designs were those of the I. W. Jones Engineering Corporation, Milton, N. H. Work was commenced late in January, 1925, and power was first transmitted to the Stanley Works on Nov. 16.

"The Bureau of Mines Orsat Apparatus for Gas Analysis" is the title of Technical Paper No. 320 of the United States Bureau of Mines. The authors are A. C. Fieldner, G. W. Jones and W. F. Holbrook. The paper describes the apparatus used by the bureau at its gas laboratory at Pittsburgh for the complete and partial analysis of gases. Many modifications of the original Orsat apparatus for gas analysis are in use at present, each having its merits and being particularly adapted for some special line of work. The number and kind of pipettes used depend on the composition of the gas to be analyzed. The bureau has received so many inquiries regarding gas analysis methods used in its laboratories that this description is now published.



Governor Appears at Left in this View. The action is very sensitive, operating on links below the generator, which in turn open wider or partly close the water passages to the turbines

Oppose Foreign Steel Purchases

California Industries Take Action to Support Domestic Makers—Reinforcing Steel Institute of California Formed

DISCUSSIONS on ways and means of minimizing the importation of foreign iron and steel on the Pacific Coast, organization of the Reinforcing Steel Institute of California, and a petition sent by the structural steel fabricators of the Far West to the American Institute of Steel Construction asking that the institute open a Pacific Coast office as soon as possible, were the chief features of the second annual conference of the Iron, Steel and Allied Industries of California, Jan. 21 to 23, at Del Monte, briefly reported by telegraph on page 285, THE IRON AGE, Jan. 28. About 150 representatives of Pacific Coast and Eastern firms attended the sessions. Maynard McFie, president W. T. McFie Supply Co., Los Angeles, and chairman of the executive committee, presided.

Group committees representing the mills, structural shops, bar jobbers, general manufacturers and foundries, met separately in executive sessions Jan. 21 for preliminary discussions of the foreign steel situation, trade practices within the respective groups, and general problems affecting the relation of the individual groups to the organization as a whole.

Reinforcing Steel Institute of California

The concrete bar jobbers at their meeting completed the preliminary organization of the Reinforcing Steel Institute of California and made plans for incorporation. The following officers and directors were elected: Edward L. Soule, president Edward L. Soule Co., San Francisco, president; George L. Eastman, president George L. Eastman Co., Los Angeles, vice-president; Charles M. Gunn, president Gunn, Carle & Co., San Francisco, treasurer. Directors for three years: Ray G. Falk, vice-president Badt-Falk Co., San Francisco, and Thomas M. Davidson, American System of Reinforcing, Los Angeles. Directors for two years: J. R. Gregory, Steel Service Co., San Francisco, and J. E. Heber, Truscon Steel Co., Los Angeles. A secretary will be appointed by the officers and directors as soon as possible.

The organization was formed following an address by C. Louis Meyer, president Concrete Engineering Co., Omaha, Neb., and treasurer of the national Concrete Reinforcing Steel Institute, Chicago. Mr. Meyer outlined the work of the national institute and urged the cooperation of the Pacific Coast jobbers. "The concrete reinforcing steel industry is a comparatively young business," he said. "For the past three or four years we have experienced all the difficulty of over-capacity and insufficient business volume to satisfy the reinforcing steel fabricators. Competitive conditions became so bad during 1924 that most concerns developed heavy losses." He recommended greater cooperation and the interchange of information on improved practices of operating.

Following his address the following ten firms applied for membership in the national institute: Kyle & Co., Fresno; Los Angeles Iron & Steel Co., Los Angeles; American System of Reinforcing, Los Angeles; Badt-Falk & Co., San Francisco; Gunn, Carle & Co., San Francisco; Steel Service Co., San Francisco; Edward L. Soule Co., San Francisco; George L. Eastman Co., Los Angeles; W. S. Wetenhall Co., San Francisco; Western Metal Supply Co., San Diego.

Mr. Meyer stated that, with the entrance of the ten California firms, the national institute will have a membership of 44 firms, handling about 90 per cent of the reinforcing bar business of the United States.

At the meeting of the structural steel fabricators' committee the foreign steel situation was discussed at length, and a telegram sent to the American Institute of Steel Construction asking that a Pacific Coast office be opened as soon as possible. A reply received from Charles F. Abbott, secretary of the institute, stated that the request would be considered by the directors at an early date and that he and Lee H. Miller, chief engineer of the institute, probably would visit the Pacific Coast in March.

The general session of the conference was opened Jan. 22 by Maynard McFie, chairman, who traced the activities of the organization during the past year, complimented the different committees on the cooperation that has been shown, and urged that all groups work in conjunction with the traffic committee for a readjustment of freight rates, so that Pacific Coast producers will be able to expand their trade territories, particularly in adjacent Western States.

Evolution of Industrial Life

The principal speaker at the first general session was Chester H. Rowell, newspaper writer and former editor and publisher of the Fresno *Republican*. Modern life, Mr. Rowell said, is a conflict between old methods and beliefs and new conditions and facts. "We are emerging economically into a new era, but many of us have not emerged emotionally and intellectually. We continue to measure new conditions and facts by the old standards, and to apply old terms which are now intellectually meaningless. The change wrought in living conditions by inventions and applied science during the past half century is probably the most far reaching revolution in the history of mankind.

"It calls for an unprecedented attitude of mind if we are to use successfully the unprecedented knowledge at our disposal in readjusting ourselves to unprecedented conditions. Old convictions are now no longer tenable in the light of new scientific discoveries, old terms are now intellectually meaningless when applied to present conditions and problems which no other generation has ever had to face, and which consequently must be solved in ways that have never been tried before."

Mr. Rowell cited the instance of Japan as having started its evolution from feudalism within the memory of living men, and mentioned the difficulties the Japanese have encountered since becoming an economic factor in the world, because of the Japanese application of Oriental ethical standards in Occidental business. Japan, he said, is now teaching Occidental business ethics in all of the national schools, which he characterized as a striking instance of the truth that whatever is economically right becomes morally right.

Engineer Should Have More Authority

In speaking about the foreign steel situation Mr. Rowell stated that, aside from the low labor costs of Europe, one of the chief reasons European iron and steel can be sold in the United States below domestic quotations is because in Europe the technical expert enjoys responsibilities and authority equal to that now held by the financier in America. He urged that the engineer, the chemist and the technical expert generally be given a larger voice in both production and distribution.

Touching on the liberal and radical tendencies of modern thinkers in regard to economic and political questions, he urged the necessity of liberty of expression and advocated a broader tolerance to new ideas. Socialism, he said, is intellectually respectable in every other country of the world but this, which, he added, is a serious reflection on our ability to face unpleasant facts. He recommended the efficacy of Bismarck's pol-

icy. "Bismarck," he said, "believed in the blood of war and the iron of industrialism. He was an ultra-conservative in every sense. But he had the foresight and the courage to adopt every constructive principle put forth by socialism, thereby leaving the socialists in an impotent and foolish position."

Chairmen of the group committees addressed the general conference Jan. 22 on the work of their respective groups. Charles M. Gunn, Gunn, Carle & Co., San Francisco, outline the proposed work of the newly organized Reinforcing Steel Institute of California. L. C. Scheller, Union Hardware & Metal Co., Los Angeles, urged closer cooperation on the part of the merchant steel jobbers, and said that there is too much of "the lone wolf policy in the merchant bar business." C. M. Henderson, H. C. Macaulay Foundry Co., Berkeley, spoke of the chaotic labor conditions in northern California, where a molders' strike has been in progress on the open shop question for more than a year. He said, however, that the present year would bring some improvement. J. C. Kortick, Kortick Mfg. Co., San Francisco, advocated closer cooperation among the general manufacturers, and the education of the purchasing agent to specify in ordering in accordance with the principles of standardization as advocated by the Department of Commerce. The general manufacturer, Mr. Kortick said, is the man who keeps the rolling mills going, and he should take a more active part in any sort of steel convention.

Stabilization of Supply and Demand

The principal speaker at the closing session, Jan. 23, was Wiggenton E. Creed, president Columbia Steel Corporation and Pacific Gas & Electric Co., San Francisco. He stated that, while new conditions require new methods, every executive knows that his chief problem is the coordination of the human element in business, rather than technical problems.

"The need of the day in business," Mr. Creed said, "is scientific stabilization, the regulation of production to consumption. That is our greatest concern. The chief business of the American people is producing, selling and prospering in the world. That is the basis of human progress, and justifies the importance we attach to the making of money. When economic affairs are prosperous the world progresses materially, and so it is necessary that we should keep in mind the fundamental principles that make for the prosperity of business."

Mr. Creed outlined the changes of American business from Colonial times, which he described as the aristocratic period. This was followed, he said, after the Civil War, by the autocratic period, which has given way to the present democratic era, characterized by widespread distribution of ownership. Americans, he said, look upon the function of modern business as service to society, and regard commercial and industrial life as a great force for the advancement of modern civilization. This has brought about a new attitude toward labor, he said, which now recognizes and in many instances defines the responsibilities of capital to the workingman, on the principle that the test of civilization is what it does for the masses.

Speaking about the steel industry, Mr. Creed said that "today the American steel industry faces a serious situation in respect to world competition, because of cheap labor costs in Europe, low foreign exchange, and the use of American capital by European steel and power industries for technical developments and sales expansion programs. "The American steel industry must not act like a rich man's son, but like the son of a poor man. It must reduce its labor content in production. This is one of the vital needs of the day in all branches of industry."

California Steel Industry Growing

The steel industry in California as compared with the East is not large, he said, but it has great possibilities of growth, and is today producing a large diversity of products for local consumption. The Columbia Steel Corporation, he said, while comparatively small, operating only 33 by-product coke ovens and one blast furnace at Provo, Utah, nevertheless paid out every month last year $700,000 for wages and supplies.

Pacific Coast steel mills will not supplant the Eastern mills, he said, but there is room for a substantial growth of the Western industry to meet the needs of an increasing population quickly and efficiently. Conditions on the Pacific Coast, Mr. Creed stated, are particularly favorable for the growth of the local steel industry. There is a high per capita consumption of steel, caused by the canning, agricultural, shipping and power industries. The development of the power industry in California makes it possible for the Pacific Coast steel industry to expand in a way that would be impossible under any other form of industrial power.

Commenting on the rumor that the Pacific Gas & Electric Co. had purchased foreign steel, Mr. Creed said that he knew of only one instance of it, which was several months ago, when the power company bought foreign pipe because it could not get delivery in California. He stated that the policy of the company is to purchase from California producers first, Pacific Coast producers second and Eastern producers third.

In regard to hydroelectric development in Europe, Mr. Creed said that it is progressing rapidly, especially in France and Germany, and this development is likely to increase the exportation of foreign steel to the United States.

Development of Markets

Resolutions adopted at the final session included the following: 1.—That the Iron, Steel and Allied Industries of California be continued as a means for the development of markets in California for California, Pacific Coast and American payrolls; the extension of marketing territories in neighboring Western States; greater efficiency in production and distribution, and general improvement in the standards of business practice among all of the interested groups. 2.—That purchasing agents be asked to give preference to California, Pacific Coast and American products, in the order named, and where consistent, on a basis of price, quality and service. 3.—That the program to minimize the importation of foreign iron and steel be continued in all cases where such importations seriously interfere with the proper development of the iron and steel industry on the Pacific Coast.

In the election of officers, Maynard McFie, Los Angeles, was reelected chairman of the executive committee; John D. Fenstermacher, secretary Columbia Steel Corporation, San Francisco, was elected vice-chairman, and Charles S. Knight, director industrial department, California Development Association, San Francisco, was reelected secretary.

The election of group committee chairmen for Northern California resulted as follows: Steel mills, C. J. Maas, Judson Mfg. Co., San Francisco. Merchant steel jobbers: F. J. Bruzzone, Baker, Hamilton & Pacific Co., San Francisco. Reinforcing steel jobbers: Edward L. Soule, Edward L. Soule Co., San Francisco. Structural shops: P. F. Gillespie, Judson Mfg. Co. General manufacturers: H. W. Force, California Corrugated Culvert Co., Berkeley. Foundries: C. M. Henderson, H. C. Macaulay Foundry Co., Berkeley. Committee chairmen for Southern California: Steel mills: J. D. Fenstermacher, Columbia Steel Corporation, San Francisco. Merchant steel jobbers: L. C. Scheller, Union Hardware & Metal Co., Los Angeles. Reinforcing steel jobbers: George L. Eastman, George L. Eastman Co., Los Angeles. Structural shops: Guy C. Boynton, Baker Iron Works, Los Angeles. General manufacturers: W. J. Boyle, Boyle Mfg. Co., Los Angeles. Foundries: Martin Madsen, Madsen Iron Works, Los Angeles.

Boiler water conditioning, with special reference to high operating pressure and corrosion, was discussed by Dr. R. E. Hall, physical chemist, United States Bureau of Mines, at the Midwest Power Conference, Chicago, Jan. 27. A limited number of abstracts has been prepared, and a copy may possibly be obtained by addressing the Bureau at Washington, asking for Serial No. 2727.

Concrete Bar Standard Views Vary

Proposed Simplification Brings Out Conflicting Opinions in Washington Meeting—Referendum to Be Held

WASHINGTON, Feb. 2.—In view of differences of opinion which arose at a meeting here last week regarding a proposal to reduce the existing variations in specifications of billet steel reinforcing bars, much interest is being manifested in the outcome of a referendum to be taken among users, distributers and producers. As stated in THE IRON AGE of Jan. 28, page 315, a committee which will conduct the referendum, will report at another general conference to be held soon after Oct. 1. The committee will be selected by W. C. Wetherill, director of the metals utilization committee, Department of Commerce, under whose auspices the conference of last week was held. The committee will be made up of representatives of all the interested groups.

The principal conflict of opinion was between manufacturers and distributers of billet bars on the one hand and producers and distributers of rail steel bars on the other. There were also differences expressed by representatives of technical societies and users. While it was clearly explained that the proposed revision of specifications related to billet bars only, rail steel bar interests expressed the view that further limitation on billet bar specifications would prove to the advantage of the latter and restrict the market for rail steel bars. It was the view of rail steel bar makers and distributers that those speaking in behalf of billet bar manufacturers and distributers were attempting to eliminate the present structural and hard grades, leaving only the intermediate. Some representatives of technical societies also felt that nothing should be done until tests had been conducted to show the requirements of consumers. Representatives of users also said that caution should be exercised in making a further reduction in the grades and specifications of new billet bars.

Large Consumption of Intermediate Grade of Steel

The position of the Concrete Reinforcing Steel Intitute was outlined by A. E. Lindau, chairman of the institute committee on grades and standard sizes of reinforcing steel. He pointed out that a canvass of the uses of billet reinforcing steel showed that 55 per cent of the consumption is in the intermediate grade, 35 per cent in the structural grade and 10 per cent in the hard grade. The tendency, he declared, was toward a higher unit stress. It is time he asserted, "to get down to brass tacks" and eliminate waste and reduce costs wherever possible to meet competition. He pointed out that the use of steel reinforcement has increased from 80,000 tons annually 20 years ago to 700,000 tons annually at present and that stocks amounting to 100,000 tons are being carried. Mr. Lindau said progress had been made when specifications had been reduced from 10 to three, but that rapid strides in concrete reinforcement necessitate the carrying of large stocks in the warehouses. The existing situation, it was declared by Mr. Lindau, will precipitate much more waste in the next 10 years unless it is remedied now. During the war, he asserted, distributers compromised on one single grade of steel, but he said that that advantage to the building industry has been lost, "and conditions will become even worse unless the mills, distributers and contractors take immediate steps to adopt a single grade of steel."

Many factors are at work to slow down the rate of increased consumption of reinforcement steel, Mr. Lindau warned. The first, and probably the most important factor, he said, is the fact that the industry has passed through its most rapid period of development.

Simplification Means Large Future Savings

"It will not find in the future, in all probability, so great an increased field as it has in the past," said Mr. Lindau, "but if the volume is only doubled in the next 20 years, then steel distributers will be carrying 200,000 or 250,000 tons of steel in stock and the saving that can be effected by standardization will be doubled over that of the present time.

"If $5,000,000 a year could be saved on the present volume of business, that saving will be doubled and will amount to $10,000,000 a year on the double volume of business. In view of the time that is required to change existing specifications, it would seem that the sooner this problem is settled the greater the economic saving will be."

Attitude of Contractors in Doubt

Col. D. H. Sawyer, secretary of the Associated General Contractors, said that he thought contractors had favored the reduction in grades made, but declared that he doubted if any further steps in this direction should be taken at present. E. F. Kinney, Bethlehem Steel Co., said the question was an engineering problem and that he thought it should be considered by the American Society for Testing Materials and the American Engineering Standards Committee. C. E. Skinner of the latter committee declared any specifications determined upon must be satisfactory to all major interests. Richard L. Humphrey of the American Society for Testing Materials urged that tests be conducted by engineering societies before action be taken, and read a letter received from Secretary Warwick of the society, stating it was an engineering problem. The principal objection raised to tests by engineers was the time required. Mr. Humphrey said that though no funds had been raised for the work, he felt sure it could be completed in a year.

Rail Steel Mills Opposed to Change

E. Hughes, Franklin Steel Works, Franklin, Pa., president of the Rail Steel Products Association, said that the adoption of one grade would constitute a monopoly for billet bars. He declared that rail steel bars had been used for 20 years and had met requirements and that they must be taken into consideration in connection with the problem discussed. When Mr. Hughes was told that the meeting related only to billet bar steel, Mr. Hughes replied there was an effort to put "the rerollers out of business by indirection through getting the intermediate grade" adopted as the single standard. Mr. Wetherill told Mr. Hughes that the Department of Commerce was not trying to adopt, even if feasible, one grade of new billet bars or any other grades, and that it certainly was not trying to abolish rerolling steel. He pointed out that the department was acting solely in the interest of all concerned with the question and was only an intermediary seeking to cooperated to that end. O. L. Irwin, Truscon Steel Co., declared there was no desire to put rail steel out of business, but that the reinforcing bar industry does not want to be handicapped in competing with structural steel interests by carrying three grades of billet bars.

Position of the Railroads

R. Farnham, Pennsylvania Railroad, urged that no change be made that would handicap specifications called for by the railroads which require material that will withstand much wear. Other speakers included Secretary of Commerce Herbert Hoover, Dr. G. H. Burgess, chairman of the Federal Specifications Board and director of the Bureau of Standards; A. S. McAllister, Bureau of Standards; R. H. Dalgleish, American Electric Railway Association; D. C. Schonthal, West Virginia Rail Co.; Julian A. Pollak, Pollak Steel Co., and C. E. Routh, Jr., Kalman Steel Co. It was upon motion of Mr. Routh that the referendum was determined upon by the conference.

Those attending the conference included the following:

Bailey, P. R., Rosslyn Steel & Cement Co., Washington.
Beeman, M. A., Concrete Reinforcing Steel Institute, Chicago.
Bissell, C. A., Bureau of Reclamation, United States Department of the Interior, Washington.
Bradley, C. S., Jones & Laughlin Steel Corporation, Pittsburgh.
Brooks, T. C., office of the Supervising Architect, United States Treasury Department, Washington.
Clark, A. P., Kalman Steel Co., Chicago.
Clark, P. R., Fireproof Products Co., New York.
Curley, J. F., Concrete Steel Co., New York.
Dale, G. E., Concrete Steel Co., Philadelphia.
Dalgleish, R. H., Capitol Traction Co., Washington, representing American Electric Railway Association.
Davis, W. P., Knoxville Iron Co., Knoxville, Tenn.
Farnham, R., Pennsylvania Railroad System, Philadelphia.
Gooder, M. R., Jr., Truscon Steel Co., Youngstown.
Greenamyer, A. G., Donner Steel Co., Buffalo.
Hill, H. P., Jr., office of the Municipal Architect, Washington.
Hook, A. S., Calumet Steel Co., Chicago.
Hughes, E. E., Franklin Steel Works, Franklin, Pa., representing Rail Steel Products Association.
Humphrey, R. L., American Society for Testing Materials, Philadelphia.
Irwin, O. W., Truscon Steel Co., Youngstown.
Jessen, A. V., Concrete Engineering Co., Omaha, Neb.
Kenney, E. F., Bethlehem Steel Co., Bethlehem, Pa.
Kibler, W. J., Buffalo Steel Co., Tonawanda, N. Y.
Knapp, H. F., Carnegie Steel Co., Washington.
Lindau, A. E., American System of Reinforcing, Chicago.
Mackey, C. F., Franklin Steel Works, Franklin, Pa.
McNulty, J. A., J. T. Ryerson & Son, Inc., Chicago.
Moran, A. H., Ordnance Office, United States Department of War, Washington.
Pardee, P., Inland Steel Co., Chicago.
Parrott, W. J., Dietrich Brothers, Baltimore.
Pollak, J. A., Pollak Steel Co., Cincinnati.
Potbury, R. J., alternate for Commander E. R. Gayler, Bureau of Yards and Docks, United States Navy Department, Washington.
Pouch, W. H., Concrete Steel Co., New York.
Reeves, W. S., Truscon Steel Co., Baltimore.
Roberts, T. G., Jones & Laughlin Steel Corporation, Washington.
Routh, G. E., Jr., Kalman Steel Co., Chicago.
Rys, C. F. W., Carnegie Steel Co., Pittsburgh, representing American Society for Testing Materials.
Sawyer, D. H., Associated General Contractors of America, Inc., Washington.
Schonthal, D. C., West Virginia Rail Co., Huntington, W. Va.
Scott, W. W., Jr., Laclede Steel Co., St. Louis, representing Rail Steel Products Association.
Shuman, J. J., Jones & Laughlin Steel Corporation, Pittsburgh.
Skinner, C. E., Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., representing the American Engineering Standards Committee.
Stacy, H. A., Bureau of Yards and Docks, United States Navy Department, Washington, representing the metals committee of the Federal Specifications Board.
Stone, Charles F., Atlantic Steel Co., Atlanta, Ga.
Thurber, H. T., Truscon Steel Co., Washington.
Tupe, H. A., Truscon Steel Co., Baltimore.
Vosmer, W. F., Donner Steel Co., Buffalo.
Youry, F. W., Truscon Steel Co., Washington.

Department of Commerce:
Burgess, Dr. G. K., director Bureau of Standards.
Gillett, Dr. H. W., metallurgist Bureau of Standards.
McAllister, Dr. A. S., Bureau of Standards, Editor National Directory of Commodity Specifications.
Becker, Luther, Iron and Steel Division, Bureau of Foreign and Domestic Commerce.
Ely, Edwin W., Division of Simplified Practice.
Priest, E. L., Division of Simplified Practice.
Wetherill, W. Chattin, director National Metals Utilization Committee.

Serviceability Tests for Materials

Are They Not More Valuable and Necessary Than the Present Simple Quality Tests?

TAKING as his subject "Selecting Material for Service," F. E. Schmitt, associate editor, *Engineering News-Record*, New York, was the principal speaker at the January meeting of the New York chapter of the American Society for Steel Treating, Wednesday evening, Jan. 27.

The address dealt particularly with the question as to whether the present methods of conventional testing really give the results which are most needed. Mr. Schmitt raised the point whether serviceability tests were not needed to a greater extent than the present methods we have of determining the qualities of material and their suitability for the purpose to which they are to be put. In other words, the suggestion was raised whether accelerated service tests had not become essential under present industrial conditions.

He pointed out that in recent years the variety of materials and the varied character of their utilization have grown remarkably, far more than is commonly realized. For example, steel has increased vastly in kinds and grades, and in the range of commercial utilization. Corresponding advance in the testing art is essential, said Mr. Schmitt, to keep pace with these increasing requirements. "Therefore, though in historical perspective the art appears well developed, we may properly inquire whether it is adequate to the needs of today and of the immediate future. Is the art efficient and satisfactory?" An offhand answer, said the speaker, is bound to be affirmative.

One particular case, illustrative of the foregoing, which the speaker cited, was the following: "Three or four years ago the alloy duralumin was applied on a large scale to a very important service, the construction of the framework of the dirigible airship Shenandoah. It was known that similar material was liable to a peculiar disease, embrittlement by inter-crystalline cracking, probably promoted by corrosion. With a truly efficient testing art, it should have been possible to question the material for the "Shenandoah" before using it and to verify its resistance to this disease. The testing art failed to meet this requirement and, two years after the ship was built, its framework proved to be attacked rather severely by the inter-crystalline cracking. So the art appears to have serious shortcomings."

After discussing various phases of the value of conventional tests as compared with suitability tests, citing the steel rail as one prominent example, Mr. Schmitt concluded his address with the following summary:

> To state the case briefly: Our testing hitherto has been directed to measuring a few analytical properties, in the belief that these would represent the full range of service quality. The test of practice shows this belief to be rosily optimistic, yet we have exploited the plan quite fully, and have settled back to doing little more than appraising quality by conventional measuring sticks. This is remotely like the attitude of the period when profound study of the theory of elasticity was believed to be the key to structural design, when we expected to solve all problems of mechanical resistance by calculating the maximum attack on a loaded piece in terms of elementary compressions, tensions, and shears. Our attempt to compound out of tensile, compressive, and shearing strength, ductility, hardness, and impact strength the vast range of service attack and resistance has not been successful.
>
> Practice recognizes this. In selecting and approving materials for specific service and deciding on their essential grade characteristics, practice depends on experience, and only afterward is the art of testing called into the case for routine checking of production. This is neither the best function of the art, nor does it meet the needs of constructors. It serves well so long as material and service both remain constant, but it is of very little help when either material or service undergoes change. When increasing weights and speeds of railroad traffic call for a more resistant rail, our tests and the accumulated records of test values fail to tell us what kind of new rail we need—how hard or strong or ductile it should be. When a new, stronger steel is demanded for high-duty crankshafts, tests do not tell us what grade will be successful; again we must rely on the verdict of service. Or, if we wish to use a certain kind of rubber fabric for floor surfacing or for belting, the tester does not help us. In short, service suitability is largely or wholly beyond the reach of the testing art, as generally practiced.
>
> Development of suitability tests, in the coming era of testing, has already begun, and in some materials rather actively. Electrical production, dealing from the beginning with new materials under new service, resorted to service tests at the start and has consistently followed the practice. In other materials, in fabrics, brick and tile, lubricating materials and bearing metals, the inadequacy or inapplicability of routine

testing machine procedures also has brought about an increasing trend toward suitability tests. Iron and steel yet lag behind in this development. They must follow in the same course, if the large range of possibilities residing in their valuable properties and the great range of our power to control these properties by alloying and treatment is to be realized fully.

And, finally, in this future development the user of material bears a definite share of responsibility. His cooperation is needed.

At the close of the address a general discussion was participated in by several of the 150 metallurgists and others present. It was generally conceded that Mr. Schmitt had brought up a subject of great importance —one that should be studied carefully and one concerning which there would be considerable difference of opinion. The practicability of accelerated serviceability tests of certain materials for certain uses was questioned.

German View of American Iron Plants

Engineer Reports on Blast Furnaces and Coke Plants—Successes Ascribed More to Superior Organization Than to Natural Advantages

WITH the object of observing blast furnace and coke operations in the United States, chief engineer Dr. Bleibtreu, of Volklingen, Germany, made a trip recently under the auspices of the Association of German Blast Furnace Operators through the United States and visited various blast furnaces and coke plants. The results of his observations were delivered in an address, "American Blast Furnace and Coke Industry," at the annual meeting of the association on Nov. 28 and 29, 1925. A brief abstract* follows:

Owing to the use of relatively low ash coals, washing of coal is seldom carried out. General adoption of washing is, however, only a matter of time, for the higher grade coals are being exhausted and the specifications for the cleanliness of coal are becoming distinctly more severe under the pressure of blast furnace requirements.

Coke Retort Operation Is Representative

In coking practice an important change has taken place in the war-time and post-war periods, due in large measure to the extensive transition from the oldtime beehive ovens to the modern by-products retorts. The coke plants are, therefore, quite modern and are located, so far as metallurgical coke is concerned, either directly at the blast furnaces or nearby. The installations are generally modeled on European and especially on German types, but in the last few years coking technology has become quite independent and a number of new types have been developed with the object of saving labor and improving operating practice. The operating conditions of the retorts must be mentioned as representative.

The service of the flues, which is considered a secondary matter in Europe, is carried out with extraordinary care and almost scientific exactitude in America. This has contributed distinctly to that uniformity of coke quality which the blast furnaces have been striving for for so many years.

Blast Furnace Operation in America

The distinguishing characteristics of blast furnace practice, as in the case of the coke ovens, lie rather in operation than in construction, although the last few years have witnessed interesting developments in construction, too. Emphasis is laid on structural simplicity, with the greatest possible provision for future extensions and the greatest safety of operating conditions for the individual units. Attention should be called also to the organization of the installation by which it becomes possible, under adverse business conditions, to shut down half or two-thirds of the plant without greatly increasing the cost of production for the part left in operation.

We in Germany must seriously consider whether we ought not to analyze our installations to determine whether the rigid centralization of certain plants could not be advantageously replaced by a more elastic arrangement. The great fluctuations in business conditions in America have resulted in keeping the operating staff as small as possible in order to keep down to the lowest possible figure the discharge of men when conditions are poor. The extensive mechanization of American plants is due more to this than to high wages.

Superiority Due to Organization and Cooperation

The speaker referred finally to the excellent spirit of the metallurgical staffs and gave several examples. The works have attempted since the war to increase the sense of responsibility of the men and to select them for promotion on the basis of character and ability. If, in the various fields of blast furnace practice, there can be said to be an American superiority, this is to be ascribed less to the generosity of nature in that country than to the superiority of organization and operation in which the executive and operating staffs cooperate intelligently. The nationalization, attempted in Germany, must also be developed along the line of increased production and quality of product.

*Translation by Albert P. Sachs.

Increase in Production of Malleable Castings

December production of malleable castings, according to Department of Commerce returns from 142 plants, of which five were idle, amounted to 65,878 tons, compared with 61,845 tons in November and with 58,773 tons in the previous December. Shipments, which have been running considerably below production for some months, were 58,942 tons in December, compared with 55,719 tons in November and with 51,441 tons in December, 1924. Orders booked in December showed a slight decrease at 54,066 tons, compared with 55,627 tons in November and with 56,541 tons a year ago. The monthly capacity covered in the December figures was 111,852 tons, production having accounted for 58.9 per cent of the capacity operated.

In giving a comparative summary for 130 identical plants, production for the year is shown at 693,946 tons, a considerable increase over the 1924 total of 590,414 tons. October, 1925, showed the highest production since March, 1924. The output month by month in 1925 was fairly uniform, the lowest month having been only 11,000 tons below the highest. This is in sharp contrast with 1924, when the lowest month was considerably less than half the highest.

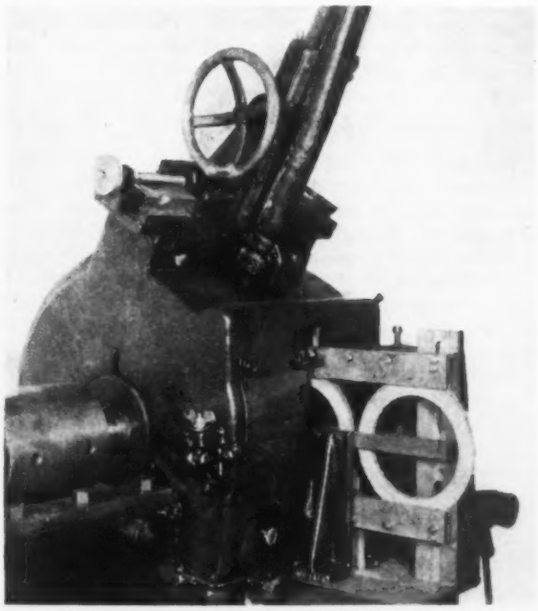
December Automobile Output Below November, but Month Sets New Records

December production of motor vehicles was 285,198 passenger cars and 34,270 trucks, according to the Department of Commerce. Of these totals, 277,700 cars and 32,542 trucks were made in this country, the remainder being made in Canada. This represents a drop in output of about 50,000 cars and 5000 trucks from the November totals, but the December figures were, nevertheless, well above those of the corresponding month in previous years. Total production of motor vehicles for the full year was a new high record. According to preliminary figures, it was 3,817,638 passenger cars and 496,998 trucks, as compared with 3,262,764 cars and 377,344 trucks in 1924; 3,702,391 cars and 391,548 trucks in 1923; and 2,385,010 cars and 253,552 trucks in 1922.

Machine Arranged for Grinding Asbestos Clutch Rings

Equipment for the grinding of asbestos clutch rings has been placed on the market by the Gardner Machine Co., Beloit, Wis. The machine consists of the company's No. 14 double-spindle disk grinder having two opposed grinding heads, each of which carries a 20 in. steel disk wheel. Heavy-type Gardner G.I.A. disks, in a special bond developed for use on asbestos, are the grinding members.

The special fixture employed consists of steel guide bars, passing between the opposed grinding members



Double-Spindle Disk Grinder With Special Fixture for Grinding Asbestos Rings. Hand feeding is necessary because of the flexibility of the material

and rigidly supported at the front and rear of the machine, as shown in the illustration. The clutch rings are fed through this fixture by hand, because the material, being flexible, does not lend itself to automatic feeds. It is necessary to grind both sides of the rings to bring them down to the required thickness, and to insure parallelism. The production on rings 9¾ in. outside diameter by 6¾ in. inside diameter, with a stock removal of 0.020 to 0.030 in., is said to be 400 per hour. These rings are held within 0.004 in. for parallelism, and within 0.005 in. for uniformity. A special dressing device shown mounted on the hood of the machine permits of truing up the grinding members without disturbing the set-up.

Automatic Can Closing Machine

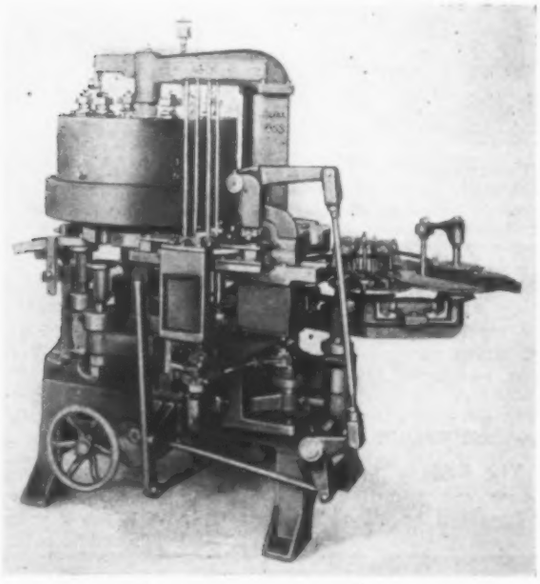
Even can feed and absence of vibration at the seaming station are features claimed for a new automatic high-speed multi-spindle can closing machine, double seamer, for round sanitary cans, which has been placed on the market by the Max Ams Machine Co., 101 Park Avenue, New York.

The machine is named the Amsco-Six, model No. 658. It is arranged so that the can stands still while being double seamed, and its rated capacity is 160 cans per min. The output varies, however, according to the contents of the cans being closed, but it is claimed that in any case the machine will handle the full output of any filling machine now on the market. Simplicity of construction, rigidity, moderate weight, adequate lubrication, and moderate speed of the drive shaft were among the basic considerations in designing the machine.

The revolving turret has six seaming stations equipped with first and second operation rollers set in the company's standard seaming rings, together with standard chucks and safety rings. The seaming heads are supported on Timken roller bearings. The number of revolutions made by each seaming head while the rollers are in actual contact with the can are about six for each can. Thus, with six seaming heads, the actual speed of each head is less than in the case of a single-spindle closing machine, and each can is in contact with the rollers for a longer period. Another advantage claimed is that the can does not move from one chuck to another between the two seaming operations but remains in the same station with the same chuck for both first and second operations. This is stressed as obviating danger of "cut-overs" or mashed seams and prevents the can from slipping on the chuck while being double seamed.

The can feed consists of a revolving disk which delivers the filled cans to a star wheel and a series of accelerating fingers which separate the cans and deliver them to the seaming stations without jerk or jar. The cover feed is simple. Covers are removed from the magazine by two reciprocating separating knives to a rotating dial which feeds them to an automatic marking device and from thence to the pockets of the intermediate turret.

All driving mechanism is located beneath the bedplate of the machine. The machine is controlled by a combination friction clutch and pulley, actuated through a control lever. An automatic "no cover-



Cans Are Closed at the Rate of 160 Per Min. The can stands still while being double seamed

no can" control is provided. The Dot system of high pressure lubrication is employed throughout with the exception of chuck shafts, main column, clutch sleeve and worm wheel gearing. The floor space occupied, front to back and right to left, is 50 x 80 in., and the overall height is 70 in. The net weight of the machine is approximately 3250 lb.

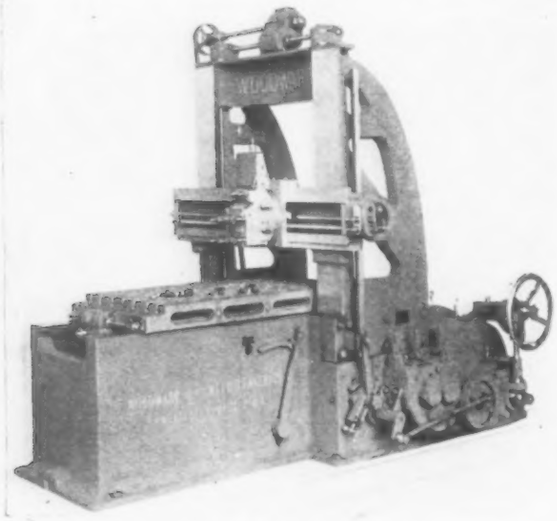
New 36-In. Crank Planer

A 36 in. x 36 in. crank planer having a maximum stroke of 42 in. has been added to the line of the Woodward & Powell Planer Co., Worcester.

The table, which is of box form, may be positioned so that any section can be under the cutting tool, thus permitting the placing of work anywhere on the table. The top of the table is 36 in. from the floor, which is stressed as a convenient height for the operator. Six changes of speed, 6, 8, 12, 17, 24 and 34 strokes per min. are obtained through a gear box employing sliding

gears located on the front of the machine. The length of stroke is changed by means of a handwheel located on the operating side of the planer, and the stroke setting in in. per min. is indicated by a dial adjacent to the handwheel. The head is of the same size and design as employed on the company's standard 36-in. rack-driven planer and has the usual horizontal, vertical and angular feeds either by power or by hand. The crossrail has power elevation; a side head can be furnished if desired. The design of the housings is the same as in other of the company's planers, being of box form and extends down on the side of bed where they are securely bolted.

The table drive is through a herringbone pinion and gear and a slotted rocker mechanism. The pin on which

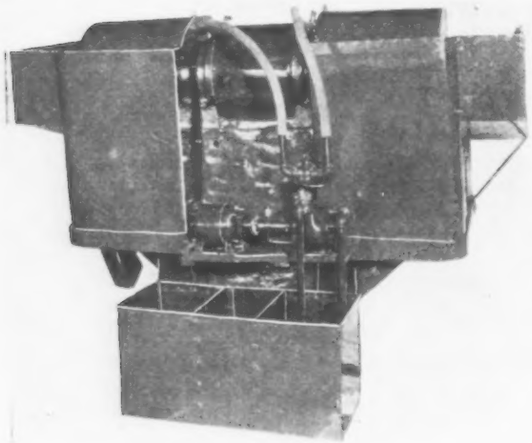


Convenience of Control Is a Feature. Six changes of speed are available, and the length of stroke may be changed by the handwheel shown

the slotted rocker oscillates is supported at both ends, which arrangement makes for a rigid construction. The machine may be arranged for either single-pulley belt drive or constant-speed motor, a 10 hp. motor being employed for the latter drive.

Improved Wet Grinding System

The Badger Tool Co., Beloit, Wis., has developed a new wet grinding system which is being adopted as standard on all of its single-spindle types of cylin-



Standard Wet Grinding System

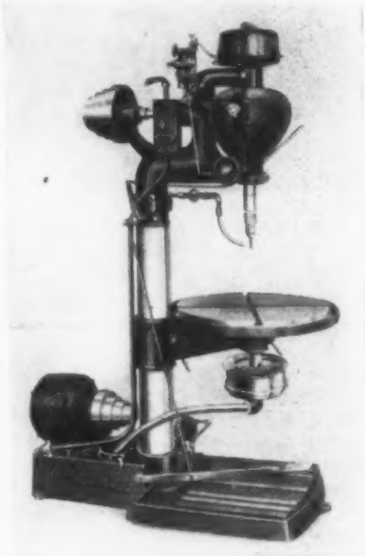
der wheel grinders. The three-compartment settling tank and the direct-motor driven Fulflo pump, with connections terminating in a nozzle over each cylinder wheel, may be noted in the rear-view illustration of the No. 4 built-in motor driven grinder shown herewith.

The saddles which carry the oscillating lever feed tables are supported on planed ways at both ends of the machine. Cast-iron water pans are attached to the pedestal directly beneath the finished ways, and form a basin into which the coolant falls. It is drained off to the settling tank through cored openings in the pedestal. The reinforced sheet-metal guards and shields are so shaped that all of the moving or working parts of the machine are inclosed, at the same time allowing full operating capacity of the 14-in. cylinder wheels and tables.

The machine shown carries a fully inclosed 5-hp. motor with special end yokes fitted with radial and thrust ball bearings. Ventilation is obtained by means of a fan attached to the rotor shaft, and by cored passages into the hollow pedestal. The entire equipment weighs 2200 lb. and requires an operating floor space of 6 ft. by 8 ft.

Improves Pneumatic Oscillating Tapper

The safeguarding of rotating parts is among recent improvements incorporated in the No. 8 pneumatic oscillating tapping machine of the W. Gaterman Mfg. Co., Manitowoc, Wis., which was described in detail in THE IRON AGE of Sept. 20, 1923. The automatic oscillating feature of the former models has been retained. Inclosing in guards of the rotating parts which were formerly open is intended to prevent foreign matter from getting into the working parts from the outside and also to prevent any over-supply of oil from being



All Rotating Parts Have Been Inclosed in Guards, and Machines With an Oil Pump Are Provided With Strainer and Chip Pan. The capacity is from ¼ to ¾ in. in steel and with back geared attachment, 1¼ in.

thrown away from the machine. It also serves to improve the appearance of the machine.

Machines that are equipped with an oil pump have a very fine wire mesh combination strainer and chip pan mounted beneath the table. This prevents chips, etc., from getting into the oil tank and pump. By slightly raising the pan it can be taken out and easily and quickly cleaned. The oil tank, which is now used instead of a bracket on which to mount the driving motor or countershaft, is cast integral with the machine base, which is stressed as adding to the rigidity of the machine. A hose with a blow airgun is now furnished as standard equipment with each machine.

Celebrates 110th Anniversary

The Townsend Co., New Brighton, Pa., has issued announcement of its one hundred and tenth anniversary and it is said to be the oldest wire mill in America. The company was started in 1816 as R. Townsend & Co., and there were subsequent changes of name to W. P. Townsend & Co. in 1864, and to C. C. & E. P. Townsend in 1894. The business has been known as the Townsend Co. since 1916. Officers are: R. T. Townsend, president and general manager; J. M. Townsend, vice-president, and V. L. Bradford, secretary and treasurer.

LABOR MATTERS

Southern California Metal Trades Discuss Vocational Training and Employee Selection

Addresses on the labor situation, on the "need of broader vocational training in the public schools," and on the necessity for applying more scientific methods to the selection of employees, together with the reelection of all incumbent officers, featured the annual meeting Jan. 19 of the Southern California Metal Trades Manufacturers Association at the Gamut Club, Los Angeles.

F. C. Metcalf, secretary Northern California Metal Trades Manufacturers Association, San Francisco, in his address on the labor situation stated that the American Federation of Labor is now doing more subtle and effective propaganda than at ever has undertaken before. He described a motion picture which, he said, is being shown throughout the country to acquaint the general public with the social accomplishments of union labor. He characterized the ownership of banks by labor unions as a significant movement, and added that the federation's new life insurance feature for union members is already helping local councils to increase their memberships.

J. C. Besweick of the state board of education, in urging the need of vocational training in the public schools, asked the cooperation of the manufacturers in allowing the State the use of their shops and foundries whenever possible.

J. M. Drum recommended development and application of more scientific methods for selecting employees along lines of experimental psychology. New methods are constanly being developed in shop practices, he said, but in the matter of selecting men, employers are governed almost entirely by whim and chance.

The following officers were reelected: Fred Czerniski, Magnus Co., Inc., president; A. R. Adamson, Hercules Foundries, Inc., first vice-president; C. H. Shattuck, C. F. Braun & Co., second vice-president; George H. Millard, Mills Iron Works, treasurer; Carroll A. Stilson, secretary.

Interstate Commission Orders Investigation of Valley Rates

WASHINGTON, Feb. 2.—Reductions in pig iron rates recently brought about through the action of the New York Central and the Wheeling & Lake Erie railroads over the strong protest of the Central Freight Association, have been followed by another conflict affecting rates on iron and steel and pig iron from Cleveland and the Mahoning and Shenango Valleys to Canton, Ohio. The latter case has been brought formally to the attention of the Interstate Commerce Commission. This was done last week, when the commission ordered inquiries upon petitions of steam railroads in Ohio. In both instances the railroads had made protests against the action of the Public Utilities Commission of Ohio in ordering reduced intrastate rates on pig iron and iron and steel products. One investigation concerns pig iron rates established by the Ohio commission from Struthers and other points in the Mahoning Valley in Ohio to Canton, and from Cleveland to Canton. As stated in THE IRON AGE of Jan. 28, page 304, the Pennsylvania commission has ordered a reduction in pig iron rates from Sharpsville, Pa., to other Pennsylvania points.

The protests of the steam railroads were made to the Federal commission on the ground that the Ohio intrastate rates are less than the rates on pig iron from points in the valley districts in Pennsylvania to Ohio points. The charge is made that this situation constitutes undue preference of intrastate commerce and undue and unreasonable prejudice and disadvantage to interstate commerce.

The Ohio commission is charged with having brought about the so-called undue preference for intrastate traffic through an order which, it is stated, had the effect of dividing this important pig iron producing section at the boundary between Ohio and Pennsylvania. It is pointed out by the railroads that the grouping of these furnaces in one district has been in existence for 40 years but that the order of the Ohio commission, issued Feb. 13, 1923, was disruptive. They therefore seek to restore the previous grouping.

Preference for Ohio State traffic, it is charged, comes from the refusal of the Ohio commission to allow increases in rates on iron and steel products such as the Interstate Commerce Commission found justified for interstate transportation in the American Shipbuilding Co. case. In that proceeding the commission found unreasonable the rates on iron and steel in "short haul" territory of eastern Ohio and western Pennsylvania and northern West Virginia to the extent that they exceeded the aggregate of intermediates. The shipbuilding case was heard jointly by the commissions of the three States mentioned, together with the Interstate Commerce Commission.

The petition of the railroads quotes the Ohio commission as having stated that the carriers might file schedules concerning Ohio rates in conformity with the views of the Interstate Commerce Commission in the shipbuilding case, but that such rates would be subject to complaint as though no proceeding had been held.

In February of last year the Ohio commission issued a report on a complaint, requiring the carriers to cancel tariffs that had been filed according to their interpretation of conclusions reached in the shipbuilding case.

Further Progress in Industrial Mobilization

WASHINGTON, Feb. 2.—Developing further the business reorganization of the procurement work of the War Department, plans have been made by Assistant Secretary MacNider to submit all army purchasing methods to a biennial critical scrutiny by 15 men selected from key industries which furnish requirements of the War Department during peace times. It is expected that the first business council will be held early next month.

The plan will carry to a further point the industrial mobilization program which was originated by Secretary of War Dwight Davis, when he was assistant secretary. The proposal under way by Assistant Secretary MacNider calls for the setting up of permanent machinery to make sure that the six supply bureaus of the War Department get full value for their money. The purchasing methods will follow the best practice in the commercial field.

It is the view of Assistant Secretary MacNider that the method determined upon should lend itself to an expansion over night of 10 to 20 fold when compared with the peace-time purchases.

Refractories Merger Pending

Negotiations are in progress looking toward a merger of several companies manufacturing fire clay and silica brick. The companies mentioned as likely to enter the combination are the Ashland Fire Brick Co., Ashland, Ky., with plants at Ashland and Hayward, Ky.; the Crescent Refractories Co., Curwensville, Pa., with plants at Curwensville and Clearfield, Pa.; the Haws Refractories Co., Johnstown, Pa., having plants at Johnstown and Hawstone, Pa.; the Stowe-Fuller Refractories Co., Cleveland, with plants at Lock Haven, Alexandria and Harbison Station, Pa., and Empire and Strasburg, Ohio, and the United States Refractories Co., Mount Union, Pa., with plants at Mt. Union and Barrett, Pa.

Shipbuilding Increasing

WASHINGTON, Jan. 30.—American shipyards, on Jan. 1, were building, or had under contract to build, for private shipowners, 186 steel vessels of 219,793 gross tons, compared with 102 steel vessels of 176,933 gross tons on Dec. 1, according to the Bureau of Navigation, Department of Commerce.

European Markets Less Active

French Consumers Well Stocked—British Tin Plate Pool Arranged —German Steel Merger Completed

(By Cable)

LONDON, ENGLAND, Feb. 1.

CLEVELAND pig iron is quieter, following the recent activity, but the market is still strong, with a scarcity of prompt supplies. Domestic demand for hematite is well maintained but export inquiry is rather quieter. Makers, however, are fully sold for several weeks ahead. Foreign ore is dull. Bilbao Rubio is quoted at 21s. 3d. to 21s. 6d., c.i.f. Tees.

Finished iron and steel are more active on domestic account and export inquiry is expanding, but sales continue restricted. Furness, Withy & Co., Newcastle-on-Tyne, have placed a contract for four 10,000-ton motor liners with Clyde shipyards.

Tin plate is firmer on increasing demand, with quotations at 19s. 6d. per base box, f.o.b. works, or port, for fair quantities. Most makers are now asking 19s. 9d. per base box. The tin plate pooling plan will be operative on and after Feb. 8, and prices are expected to go higher. Galvanized sheets are easier, with the recent poor demand, but fair sales are now being reported at £16, f.o.b., for No. 24-gage corrugated sheets in bundles, and makers' order books are better filled. Japanese inquiry for light-gage black sheets is poor and prices weaker. But there is increased demand from Japan for the heavier gages.

The Continental situation is generally unchanged. There is a moderate demand, chiefly for semi-finished steel, but few makers are able to supply much tonnage. Sheet bars have sold at £4 16s., f.o.b., merchant bars at £5 8s. 6d., f.o.b., and joists at £4 19s., f.o.b.

Finland has purchased 18,000 tons of rails, of which 10,500 tons went to the German Stahlwerksverband and 7500 tons to the Cockerill works at Seraing, Belgium.

German Pig Iron and Steel Output Increased in 1925

(By Radiogram)

BERLIN, GERMANY, Feb. 1.

Pig iron sales have declined further. The domestic market is unchanged and dull resulting in maintenance of January prices and selling conditions for February by the Pig Iron and Steel syndicates. The Steel syndicate's 35 per cent reduction of output is also retained. The scrap market is active again.

The export market, especially on bars, sheets, wire, railroad permanent way material, is improving as French and Belgian competition become less severe.

Production in 1925

Production of pig iron in 1925 was 10,176,699 metric tons against 8,812,231 tons in 1924. Total steel production was 12,193,454 tons against 9,835,255 tons in 1924. Output of rolling mill products was 10,246,199 tons against 8,174,320 tons in 1924.

FRENCH DEMAND LESSENS

Consumers and Mills Well Covered—Buying on Smaller Scale—Pig Iron Still Active

PARIS, FRANCE, Jan. 15.—The slight recovery in the value of the franc that occurred during the holidays has brought about less activity and a temporary check in the advance of prices. The succeeding decline of the franc, however, has again stirred the markets to activity, although purchasing is beginning to be on a smaller scale, with consumers well stocked and consumption of the manufactured product light. From this rapid shifting of the market it is evident that as long as the political situation and the exchange are as

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £, as follows:

Durham coke, del'd	£1	2s.				$4.35			
Bilbao Rubio ore†	1	1½				5.22			
Cleveland No. 1 fdy	3	12½	and	£3	13s.*	17.62	and	$17.74*	
Cleveland No. 3 fdy	3	10	and	3	10½*	17.01	and	17.13*	
Cleveland No. 4 fdy	3	9	and	3	9½*	16.77	and	16.88*	
Cleveland No. 4 forge	3	8	and	3	8½*	16.52	and	16.65*	
Cleveland basic	3	10	and	3	10½*	17.01	and	17.13*	
East Coast mixed	3	17	to	4	0	18.71	to	19.44	
East Coast hematite	4	19				24.06			
Ferromanganese	15	10				75.33			
*Ferromanganese	15	5				74.12			
Rails, 60 lb. and up	7	5	to	8	0	35.24	to	38.88	
Billets	6	0	to	7	10	29.16	to	36.45	
Sheets and tin plate, bars, Welsh	6	5				30.38			
Tin plates, base box	0	19½	to	0	19¾	4.74	to	4.80	
						C. per Lb.			
Ship plates	7	2½	to	7	12½	1.54	to	1.65	
Boiler plates	11	0	to	11	10	2.39	to	2.49	
Tees	7	7½	to	7	17½	1.47	to	1.71	
Channels	6	12½	to	7	2½	1.44	to	1.55	
Beams	6	7½	to	6	17½	1.40	to	1.50	
Round bars, ¾ to 3 in.	7	17½	to	8	7½	1.71	to	1.81	
Steel hoops	10	10	and	11	0*	2.28	and	2.49*	
Black sheets, 24 gage	11	5	to	11	10	2.35	to	2.49	
Black sheets, Japanese specifications	14	15				3.19			
Galv. sheets, 24 gage	16	0	to	16	7½	3.47	to	3.55	
Cold rolled steel strip, 20 gage	18	0				3.91			

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

Foundry pig iron: (a)								
Belgium	£3	3s.	to	£3	5s.	$15.30	to	$15.80
France	3	3	to	3	5	15.30	to	15.80
Luxemburg	3	3	to	3	5	15.30	to	15.80
Basic pig iron: (a)								
Belgium	3	2	to	3	4	15.06	to	15.55
France	3	2	to	3	4	15.06	to	15.55
Luxemburg	3	2	to	3	4	15.06	to	15.55
Coke	0	18				4.37		
Billets:								
Belgium (Nom.)	4	11½	to	4	12½	22.23	to	22.48
France (Nom.)	4	11				22.11		
						C. per Lb.		
Merchant bars:								
Belgium	5	8	to	5	10	1.19	to	1.21
Luxemburg	5	8	to	5	10	1.19	to	1.21
France	5	8	to	5	10	1.19	to	1.21
Joists (beams):								
Belgium	4	19	to	5	2½	1.09	to	1.12
Luxemburg	4	19	to	5	2½	1.09	to	1.12
France	4	19	to	5	2½	1.09	to	1.12
Angles:								
Belgium	5	2	to	5	4	1.12	to	1.15
⅜-in. plates:								
Belgium	5	19	to	6	3	1.31	to	1.34
Germany	6	2½	to	6	5	1.35	to	1.36
½-in. ship plates:								
Belgium	5	10	to	5	12½	1.21	to	1.22
Luxemburg	5	10	to	5	12½	1.21	to	1.22
Sheets, heavy:								
Belgium	6	3	to	6	4	1.36	to	1.37
Germany	6	3	to	6	4	1.36	to	1.37

(a) Nominal.

uncertain as at present rapid fluctuation of the market will continue a serious factor in business.

Pig Iron.—Demand for pig iron continues to cause increases in production, both basic and foundry iron being quite active. Although the 40,000 tons of production set aside for January disposal has been completely sold, the supplementary tonnages set aside for February-March delivery have not moved particularly well so far; consumers, especially the foundries, apparently finding themselves fairly well covered for the present. Producers are beginning to believe that the latest increase of domestic prices to 395 fr. ($14.97) per metric ton for February-March shipment was too great an advance in view of the export quotation of 320 Belgian francs ($14.53) per metric ton, f.o.b. Antwerp. Hematite is in greater demand and the entire tonnage available for January-February shipment has been sold. As a result the price set for March, an advance of 15 fr. to 510 fr. ($19.33) per metric ton, is being applied on all additional supplies available. Hematite of forge grade is quoted at 480 fr. ($18.19) in the Lyons district. The Entente of Hematite Iron Producers ends Feb. 28, but is expected to be renewed.

Semi-finished Material.—Most producers are booked for three to five months in advance and are unwilling to make contracts except on a basis of price prevailing at time of delivery, which is not a satisfactory plan to most consumers. Open-hearth steel is particularly scarce, resulting in a decided advance in prices on this grade. Basic Bessemer blooms are also in heavy demand from domestic consumers, but export prices are inclined to weakness in the face of light purchasing. Billets are practically unobtainable, f.o.b. Antwerp, for export. The quotation is nominally £4 8s. 6d. to £4 9s. ($21.51 to $21.63) per metric ton f.o.b. Antwerp, while the domestic market is from 540 to 580 fr. ($20.46 to $21.98) per metric ton.

Finished Material.—There is still some irregularity of prices with 580 fr. ($21.98) on beams reported still unobtainable in the East until a few days ago. The current market, however, is from 600 to 650 fr. ($22.74 to $24.63) per metric ton. Beams for export are quoted at £4 17s. to £4 18s. ($23.57 to $23.81) per metric ton, f.o.b. Antwerp. Prices of rails are difficult to determine as the members of the Rail Syndicate determine prices on a basis of transactions. An auction of 2770 tons of 26 kg. sections for use in French West Africa has not been held as the makers have exceeded the maximum price stipulated in the specifications. The lowest price submitted was 666 fr. ($25.24) per metric ton, f.o.b. Dunkirk.

Wire Rods.—Mills are heavily booked with business and accepting few orders. It is reported that purchases have been made in Germany by consumers unable to fill their requirements with French mills. The domestic market ranges from 700 to 720 fr. ($26.53 to $27.29) per metric ton, with the export price unchanged at £5 15s. to £5 16s. ($27.98 to $28.19) per metric ton, f.o.b. Antwerp.

GERMAN MERGER COMPLETE

United Steelworks to Be a Large Factor in Export Trade by Cost Reduction—American Investment Expected

BERLIN, GERMANY, Jan. 15.—Following protracted negotiations, the United Steelworks Co. (Vereinigte Stahlwerke A. G.) has been established by a merger of the greatest western producers of iron, steel and coal. In some products it is not yet certain how complete the new combination will be, as the Rhenish Steel Co., one of the merging interests, has a contract by which it must deliver fixed quantities of coal to a foreign company, the dyes and nitrate trust, so that this company's coal will not be included in the available production of the new corporation.

The new combination is purely a horizontal one, confined to the production and sale of raw and semi-finished materials and perhaps fuel. In contrast to the former Stinnes interests and other post-war combinations of industry, the new corporation will not engage in shipbuilding or in the production of manufactured products, although most of the merging companies have connections with shipyards and three of those in the Rhine-Elbe Union are combined in a community of interests with the two Siemens electrical companies, forming with them the Electro-Mining Corporation. The collapse of the Stinnes combination, which was a vertical trust, producing materials from the raw product to the finished article, was a serious blow to the prestige of the vertical organization. As a horizontal combination, the new United Steelworks Co. is returning to the pre-war policy of corporations.

To avoid the 4 per cent merger tax and the 3 per cent land transfer tax the new corporation has been established with a capital of only 50,000 m. and negotiations are under way to have payment of these taxes postponed. Ultimately the capital is expected to be 800,000,000 m. and the new organization will be a corporation in the American sense, not a holding company or community of interests. Friedrich Krupp A. G. originally planned to participate in the new company, but finally withdrew. The combination includes the following: Rhine-Elbe Union, consisting of the Deutsch-Luxemburg Co., Gelsenkirchener Bergwerks A. G. and Bochum Gussstahl Co.; Otto Wolff & Co., with the subsidiaries the Phoenix A. G. and Vereinigte Stahlwerke van der Zypen-Wissen; August Thyssen & Co., and the Rheinische Stahlwerke.

Controlling as it does a great part of national production, the United Steelworks Co. is expected to become the outstanding factor in German steel production. The direct purpose of the corporation is so to reduce production costs as to permit profitable export of iron and steel, even in the face of the present low European prices caused by the depreciated French and Belgian exchanges. The executive and clerical departments of the companies will be reduced, the sales organizations combined and reduced, and there is to be a complete reorganization of production methods, involving a considerable reduction in the number of engineers and workmen at the various plants, unless there is an increase in demand, permitting higher operating rates.

But little information as to the financing of the new company is available. The Rhine-Elbe Union has negotiated a $25,000,000 loan in New York (THE IRON AGE, Jan. 28), and it is estimated in some financial quarters that at least $25,000,000 more will be required. It is stated further that, in addition to the flotation of bonds, American capital will later be employed in the purchase of shares in the proposed 800,000,000 m. corporation, to the extent of about 100,000,000 m.

Japan Buys American Rails

NEW YORK, Feb. 1.—Few new inquiries from foreign markets have appeared recently. Although the market on light-gage black sheets for Japan is about $85 per ton, c.i.f. Japanese port, it does not display the strength of the tin plate market, which is apparently quite firm at $5.60 per base box, c.i.f. Japan. Tin plate mills are so well filled with business that there is but little inclination to seek export business, so that in the case of the recent inquiry of the Nippon Oil Co. for 22,350 base boxes, the leading export interest will apparently meet but little competition from other American makers. While both the sheet and tin plate markets on export business are apparently quite firm, it is noteworthy that the 35 miles of 80-lb. rails, about 4500 tons, for which the South Manchuria Railway Co. has been in the market was placed with a large American export interest through a prominent Japanese export house. This is the first purchase of American rails by the South Manchuria Railway Co. in some time. The inquiry of the Tokyo Gas Co. for 1,600,000 ft. of gas pipe will probably be placed this week.

Where Steel Exports Went in 1925

Canada Took 360,427 Tons of Nine Leading Items and 614,661 Tons in All—Japan Retains Second Position with 94,775 Tons of Nine Items, Followed by Cuba with 86,637 Tons—Cuba Second in Total Purchases, with 146,823 Tons to Japan's 132,674 Tons

Exports from United States, by Countries of Destination

(In Gross Tons)

	Steel Plates				Galvanized Sheets				Black Steel Sheets			
	December		Twelve Months Ended December		December		Twelve Months Ended December		December		Twelve Months Ended December	
	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924
Total	*9,933*	*5,266*	*104,450*	*85,543*	*12,410*	*8,166*	*160,270*	*108,148*	*11,357*	*7,592*	*95,431*	*118,742*
Canada	8,701	4,619	82,384	67,305	1,751	844	24,927	17,300	3,571	2,072	43,613	37,142
Japan	12	91	928	702	176	2,793	3,982	15,340	6,849	5,124	38,234	101,606
Cuba	50	6	1,245	1,312	981	386	11,671	11,296	18	17	1,083	849
Philippine Islands	....	....	487	1,425	2,103	544	18,401	13,568	21	25	159	25
Mexico	269	49	1,560	718	733	588	7,524	6,035	....	....	....	....
Argentina	....	....	....	....	493	151	35,642	14,460	20	49	767	223
Chile	....	....	....	....	351	9	2,507	1,246	....	....	....	....
Colombia	....	....	....	....	921	544	3,720	4,325	....	....	....	....
Central America	....	....	....	....	....	320	....	4,503	....	....	....	....

	Steel Rails				Barbed Wire				Plain and Galvanized Wire			
	December		Twelve Months Ended December		December		Twelve Months Ended December		December		Twelve Months Ended December	
	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924
Total	*4,820*	*23,198*	*151,690*	*208,829*	*5,873*	*6,557*	*71,115*	*90,443*	*2,770*	*1,597*	*35,596*	*37,052*
Canada	171	1,043	20,212	18,355	92	995	1,980	4,329	858	438	13,701	8,301
Japan	221	1,473	10,136	33,943	....	....	....	....	89	33	730	4,082
Cuba	1,973	2,679	37,343	47,802	391	258	4,406	7,620	140	99	2,215	1,721
Philippine Islands	429	132	3,807	5,895	486	....	1,626	....	22	....	916	....
Mexico	505	847	5,394	9,177	469	427	5,409	3,988	535	258	1,712	3,686
Argentina	....	....	....	....	793	485	10,038	10,267	93	3	1,255	3,544
Chile	3	....	6,031	9,102	....	....	....	20	....	....	....	27
Colombia	380	161	2,569	9,231	940	788	5,670	7,287	119	....	229	....
Brazil	....	....	6,085	9,999	485	1,765	14,112	29,694	....	135	....	7,526
Chosen	....	....	....	36	....	....	....	....	....	....	....	....
Honduras	....	213	1,324	3,180	....	....	....	....	....	....	....	....
Kwan Tung	....	....	....	10,985	....	....	....	....	....	....	....	....
Australia	....	....	....	....	182	124	....	3,053	218	251	2,496	2,804
British S. Africa	....	....	....	....	....	456	....	4,999	....	....	....	....

	Tin Plate				Steel Bars				Plain Heavy Structural Material			
	December		Twelve Months Ended December		December		Twelve Months Ended December		December		Twelve Months Ended December	
	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924
Total	*13,001*	*12,566*	*161,383*	*160,994*	*9,859*	*5,942*	*111,948*	*98,380*	*9,640*	*7,586*	*104,339*	*102,108*
Canada	1,578	976	35,751	22,513	5,896	....	64,302	....	7,450	....	73,557	....
Japan	2,609	7,263	38,794	53,984	7	....	979	....	....	....	992	....
Cuba	391	902	4,802	5,887	204	....	5,121	....	540	....	18,751	....
Mexico	330	387	5,276	3,918	....	....	....	....	....	....	....	....
Argentina	397	379	6,656	8,888	....	....	....	....	....	....	....	....
Chile	1,161	272	6,720	3,278	....	....	....	....	182	....	2,074	....
Uruguay	....	....	....	409	....	....	....	....	....	....	....	....
China	303	997	....	24,680	....	....	....	....	....	....	....	....
British India	1,311	578	....	10,010	....	....	....	....	....	....	....	....
Hong Kong	....	....	....	6,347	....	....	....	....	....	....	....	....
Italy	203	101	....	4,114	....	....	....	....	....	....	....	....

Total Exports of Iron and Steel Products from the United States, in Gross Tons

	December				December		
	1925	1924	1925		1925	1924	1925
Belgium	9,034	9,542	209	Chile	44,940	31,854	2,807
Bulgaria	116	....	....	Colombia	77,336	39,288	5,001
Denmark	1,391	613	104	Ecuador	2,218	....	210
Finland	1,213	....	1	British Guiana	571	....	13
France	9,047	2,625	907	Dutch Guiana	661	....	73
Germany	2,488	1,235	106	Paraguay	110	....	2
Greece	4,175	....	1,146	Peru	17,895	28,177	2,608
Italy	41,767	22,511	262	Uruguay	5,433	4,597	521
Netherlands	2,735	2,262	105	Venezuela	35,232	24,874	5,310
Norway	3,470	3,250	91				
Poland and Danzig	124	....	....	British India	25,750	†23,675	3,450
Portugal	728	1,110	1	Ceylon	174	....	104
Rumania	1,995	....	696	Straits Settlements	6,301	1,973	671
Russia	3,562	....	2,034	Other British East Indies	418	....	414
Spain	6,117	4,299	331	China	56,816	57,126	1,571
Sweden	664	701	37	Chosen	215	....	3
Switzerland	102	248	6	Java and Madura	8,597	....	395
Turkey	1,827	....	39	Other Dutch East Indies	16,597	....	751
United Kingdom	52,313	56,855	4,734	Hongkong	3,569	11,086	75
Yugoslavia and Albania	220	....	....	Japan	132,674	277,204	14,219
				Kwangtung, leased territory	1,802	17,204	37
Canada	614,661	550,593	54,538	Palestine and Syria	434	....	69
British Honduras	221	....	107	Persia	1,197	....	....
Costa Rica	2,954	....	191	Philippine Islands	46,896	48,909	4,400
Guatemala	7,600	13,686	927	Russia in Asia	190	....	183
Honduras	5,963	7,653	461	Siam	185	....	3
Nicaragua	5,779	....	971	Turkey in Asia	497	....	....
Panama	14,626	13,544	699				
Salvador	15,393	....	325	Australia	22,543	23,148	2,137
Mexico	102,412	108,512	6,717	New Zealand	2,060	3,230	239
				Other Oceania	206	....	7
Newfoundland and Labrador	1,701	....	138				
Bermuda	242	....	30	Belgian Kongo	106	....	....
Barbados	23	....	1	British West and East Africa	158	80	5
Jamaica	1,530	....	180	British South Africa	23,208	31,287	992
Trinidad and Tobago	5,746	....	725	Egypt and Palestine	3,314	1,965	131
Other Brit. West Ind	2,321	*7,458	130	Portuguese East Africa	981	938	92
Cuba	146,823	165,637	10,650	Other Portuguese Africa	142	....	1
Dominican Republic	10,487	11,309	579	Other South and Central America	....	21,234	....
Dutch West Indies	3,741	....	220	All other countries	448	50,134	45
Haiti	1,945	....	254				
Virgin Islands of U. S	274	....	20	Total	1,762,571	1,805,153	142,209
Argentina	87,296	55,388	4,056				
Bolivia	1,855	....	182				
Brazil	46,016	68,139	2,759				

*Includes all British West Indies.
†Includes Ceylon.

MACHINERY EXPORTS UP

Heavy Gain Over Last Year—Second Largest Ever Recorded

WASHINGTON, Jan. 30.—Aggregating a value of $37,933,511, exports of machinery in December, 1925, were the highest for that year, with the exception of August, when the value was $38,768,823. Machinery exports for 1925, at $385,376,676, were the next to the highest for any year on record, being exceeded only by exports for 1920, with a value of $462,934,073.

Exports of machinery in December made a striking gain of more than $7,800,000, when compared with November, the total for the latter month being $30,084,814. When compared with the previous December the increase was much more striking, amounting to more than $15,000,000, exports in December of 1924 having been valued at $22,794,895.

The increase for the calendar year was in excess of $68,000,000 over 1924, when the total value was $317,040,424. One of the principal increases has been in agricultural machinery and implements. Exports of metal-working machinery in December totaled 3988 in number, with a value of $1,155,660, as against 2464, valued at $1,007,376, in November.

United States Exports and Imports of Machinery

1924	Exports of Machinery	Imports of Machinery	Exports of Metal-Working Machinery
October	$28,094,797	$604,226	$834,806
November	25,502,430	1,354,600	715,327
December	22,794,895	643,365	867,616
The year	317,040,424	9,711,618	8,644,444
1925			
January	28,117,952	803,829	845,986
February	23,215,776	814,703	707,445
March	35,962,076	999,237	1,364,930
April	36,033,980	1,167,099	1,245,634
May	32,164,865	861,655	1,230,914
June	28,746,061	935,487	1,003,325
Fiscal year	338,715,075	10,404,337	10,776,079
July	32,320,533	905,872	1,188,069
August	38,768,823	747,912	1,308,372
September	30,719,342	956,250	989,379
October	31,271,007	996,557	905,826
November	30,084,814	876,113	1,007,376
December	37,933,511	1,448,316	1,155,660
The year	385,376,676	11,577,911	13,052,916

Imports of Machinery Into the United States

	(By Value) December 1925	December 1924	Twelve Months Ended December 1925	1924
Metal-working machine tools	$25,803	$18,858	$373,575	$335,903
Agricultural machinery and implements	322,655	146,500	3,094,104	2,285,830
Electrical machinery and apparatus	73,835	73,268	938,726	1,191,185
Other power generating machinery	1,908	.....	15,427	89,876
Other machinery	848,844	294,753	5,216,626	3,982,381
Vehicles except agricultural	175,271	109,986	1,939,453	1,826,443
Total	$1,448,316	$643,365	$11,577,911	$9,711,618

United States Metal-Working Machinery Exports

	December, 1925 No.	Value	November, 1925 No.	Value
Lathes	177	$314,305	142	$317,297
Boring and drilling machines	89	43,712	69	22,921
Planers, shapers and slotters	19	30,014	21	39,076
Bending and power presses	67	58,568	35	40,535
Gear cutters	14	32,824	38	56,949
Milling machines	72	108,036	96	164,138
Thread-cutting and screw machines	75	100,579	56	87,763
Punching and shearing machines	10	12,850	9	4,125
Power hammers	30	27,704	19	17,254
Sharpening and grinding machines	100	244,917	91	155,923
Chucks, center, lathe, drill and other metal-working tools	1,460	23,250	921	15,963
Pneumatic portable tools	1,875	158,901	967	85,432
Total	3,988	$1,155,660	2,464	$1,007,376

Imports of machinery in December, with a value of $1,448,316, showed a sharp increase over imports in November, when the value was $876,113, and were more than double the value of imports in December, 1924, with a value of $643,365. For the calendar year 1925 machinery imports, valued at $11,577,911, showed an increase of almost $2,000,000 over the value of imports for 1924, amounting to $9,711,618.

Exports of locomotives in both December and for the year showed sharp increases over corresponding periods of the previous year. Locomotives exported in December were valued at $712,860, and for the year at $7,022,123. Of the December shipments of locomotives 11, valued at $278,050, went to Cuba, while for the year 52 locomotives were shipped to Cuba from the United States, with a value of $1,110,076. While no American locomotives were shipped to Brazil in December that country led all others as the destination of shipments for the calendar year, taking 86, valued at $1,945,094. In December Chile took eight locomotives, valued at $256,000, and for the year took 31 locomotives, valued at $738,907. Canada took five locomotives, valued at $46,831, in December and 55, valued at $822,430, for the calendar year.

Machinery Exports from the United States
(By Value)

	December, 1925	December, 1924	Twelve Months Ended December, 1925	December, 1924
Locomotives	$712,860	$580,638	$7,022,123	$5,649,456
Other Steam Engines	262,426	28,268	1,071,518	918,268
Boilers	118,131	42,137	1,929,736	1,864,454
Accessories and Parts	148,037	82,308	2,087,002	1,723,428
Automobile Engines	978,080	924,114	15,273,952	4,188,426
Other Internal Cumbustion Engines	640,376	347,970	9,190,786	7,036,586
Accessories and Parts for	352,941	192,126	4,110,699	3,471,783
Electric Locomotives	126,786	42,855	811,321	2,243,040
Other Electric Machinery and Apparatus	575,627	638,115	6,882,648	7,937,616
Excavating Machinery	218,607	30,974	3,124,937	2,233,206
Concrete Mixers	94,611	51,160	807,464	642,518
Road Making Machinery	136,432	65,678	1,430,036	1,189,476
Elevators and Elevator Machinery	151,392	86,960	1,933,476	1,884,694
Mining and Quarrying Machinery	845,714	861,204	7,824,359	10,080,212
Oil Well Machinery	1,319,028	349,825	10,249,069	6,399,165
Pumps	755,005	391,238	7,593,499	7,119,119
Lathes	314,305	95,727	2,584,504	1,197,752
Boring and Drilling Machines	43,712	83,227	629,301	615,695
Planers, Shapers and Slotters	30,014	30,758	563,633	349,272
Bending and Power Presses	58,568	157,552	594,916	618,998
Gear Cutters	32,824	14,879	816,576	391,361
Milling Machines	108,036	112,166	1,630,611	644,751
Thread Cutting and Screw Machines	100,579	64,173	1,192,596	590,200
Punching and Shearing Machines	12,850	4,111	194,510	100,285
Power Hammers	27,704	13,443	246,092	241,904
Sharpening and Grinding Machines	244,917	195,109	3,075,140	1,814,681
Other Metal Working Machinery and Parts of	616,712	306,013	5,581,844	4,146,414
Textile Machinery	1,394,533	789,961	11,488,800	8,752,282
Sewing Machines	837,545	654,094	8,743,670	8,406,222
Shoe Machinery	134,699	137,236	1,370,142	1,473,049
Flour-Mill and Gristmill Machinery	88,502	84,270	889,105	811,935
Sugar-Mill Machinery	694,740	264,146	8,270,021	8,304,990
Paper and Pulp Mill Machinery	234,166	117,046	1,717,451	2,130,685
Sawmill Machinery	107,396	55,412	823,336	628,559
Other Woodworking Machinery	97,276	138,430	1,347,871	1,336,506
Refrigerating and Ice Making Machinery	347,851	179,421	2,485,291	2,180,425
Air Compressors	326,109	258,770	3,886,690	2,958,936
Typewriters	1,820,654	1,262,292	18,020,494	15,110,536
Power Laundry Machinery	118,290	47,847	998,335	975,121
Typesetting Machines	357,815	243,715	3,446,955	3,530,108
Printing Presses	641,460	595,938	4,798,261	4,825,425
Agricultural Machinery and Implements	7,476,122	3,542,303	77,936,911	59,974,044
All Other Machinery and Parts	14,230,079	8,631,286	140,700,995	120,378,841
Total	$37,933,511	$22,794,895	$385,376,676	$317,040,424

Of exports of sewing machines in December, the United Kingdom took 3089, valued at $172,914, and for the year took 41,191, valued at $1,888,487. The Philippine Islands took 4307 sewing machines, valued at $120,380, in December, and for the year 26,805, valued at $768,121. Sewing machines shipped to Mexico in December numbered 2863, with a value of $104,058, while for the year the number shipped to Mexico was 39,326, with a value of $1,106,354.

Typewriters shipped to France in December numbered 3962, with a value of $238,979, and for the year 32,080, valued at $1,900,334. The United Kingdom was the greatest purchaser of American typewriters, taking 7050, valued at $412,798, in December, while for the year the number was 63,803 and the value $3,453,532.

British Exports and Imports

WASHINGTON, Jan. 30.—Galvanized sheets constituted the largest item of iron and steel exports from Great Britain, both in December, 1925, and in the calendar year. For the month the outward movement of galvanized sheets from Great Britain amounted to 68,134 tons, while for the year it totaled 713,084. Pig iron ranked second for the month, exports amounting to 47,866 tons, and also for the year, with a total of 559,939 tons.

Tin plate was the third largest item of export from Great Britain for both December and the calendar year 1925, the respective totals being 47,127 tons and 511,049 tons. By far the heaviest item of imports into Great Britain for both December and for the year consisted of raw and semi-finished steel. For the month the total was 121,292 tons and for the year the total was 1,211,985 tons.

Exports of Leading British Steel Products in Thousands of Gross Tons Per Month

	1925	1924	1920	1913
Pig iron and ferroalloys..	46.6	49.9	48.3	93.7
Iron bars, rods and shapes	3.1	3.5	4.9	11.8
Steel bars, rods and shapes	19.8	23.2	30.3	20.9
Hoops and strips.....	5.1	5.7	4.7	3.8
Plates and sheets.....	9.9	15.4	16.6	11.2
Black plates and sheets..	19.5	24.5	14.5	11.7
Galvanized sheets	59.4	54.1	34.2	63.5
Tin plates and sheets....	42.6	46.3	29.4	41.2
Rails	17.3	15.4	11.2	42.2
Cast tubes, pipes and fittings	7.8	7.0	8.4	19.6
Wrought tubes, pipes and fittings	16.0	14.0	10.5	13.7
Wire and manufactures..	9.8	10.7	9.9	9.6
Total of all exports (except scrap)	310.9	321.0	270.9	414.1

Imports of iron and steel, while not so large as in 1924, were very heavy. The total, including scrap, was 2,818,734 tons, compared with 2,881,856 tons in 1924.

British Iron and Steel in 1925

The production of pig iron in Great Britain in December was 503,400 gross tons compared with 494,100 tons in November. The steel ingot and castings output in December was 606,800 tons, which compares with 653,800 tons in November.

The December output brings the production of pig iron for 1925 to 6,236,200 tons and of steel ingots and castings to 7,397,300 tons; both of these totals are less than the corresponding outputs for 1924 and 1913. The following table gives the average monthly output of pig iron and steel ingots in gross tons for 1925 compared with some of the post-war years and with 1913:

	Pig Iron, Tons	Steel Ingots and Castings, Tons
1913—Average monthly...	855,000	638,600
1920—Average monthly...	669,500	755,600
1922—Average monthly...	408,500	490,100
1923—Average monthly...	620,000	706,800
1924—Average monthly...	609,900	685,100
1925—Average monthly...	519,700	616,400

Improvement in British Machinery Market

Imports of machine tools into Great Britain for the 11 months, January to November, 1925, totaled 4558 tons, compared with 3007 tons for the same period in 1924, an increase of about 50 per cent. The United States had an outstanding position as a supplier of machine tools for the British market, furnishing imports for the period of January to October, 1925, inclusive, a total value of £376,285, more than twice as much as that supplied by its nearest competitor, Germany. A report to the United States Department of Commerce from W. M. Park, London, assistant trade commissioner, says that American machine tools are purchased in the British market mainly on account of their high efficiency and not on the basis of price. Machine tools imported from continental Europe, on the other hand, are selling in the British market mainly because of their low price and because German manufacturers in particular facilitate sales by sending over heavy stocks and by the expenditure of a considerable amount of money in advertising in the British market.

British dealers in machine tools, especially those carrying American lines, report that the market improvement realized in 1925 will undoubtedly continue through 1926 at approximately the same rate.

Other lines of American industrial machinery fared well in Great Britain during 1925. For example, American manufacturers obtained considerable business as a result of the establishment of a silk hosiery plant in England by an American company and a large beet sugar factory to be built in England will be partly supplied with American equipment.

The improvement in the British market is attributed to better trade in automobile, airplane and electrical goods industries. Railroads were also larger buyers and there was a fairly good demand for road-making machinery. There has been extensive building of new roads in England.

National Foreign Trade Convention at Charleston

"This is the period which bids fair to see the restoration of international trade to the volume it held before the outbreak of the world war," declares James A. Farrell, chairman of the National Foreign Trade Council, in his call to the 1926 convention to be held at Charleston, S. C., April 28, 29 and 30.

"The world did more work last year than it did the year before," Mr. Farrell says, "and its trade grew correspondingly. Expanded production and importation of raw materials by the great industrial nations of both hemispheres indicate further expansion of production and consumption for this year. Every step of this recovery and advance carries with it its own problems, demanding continued study and thoughtful examination."

According to the estimates of the council, the world's export trade for the current year will exceed $28,000,000,000, thus equalling in volume, accounting for the decreased real value of money, the export trade of $19,322,000,000, done in 1913, the last year before the great war.

Mr. Farrell also announces the preliminary program of the convention, which lays special emphasis on accelerating American exports. The American Manufacturers Export Association, the National Association of Credit Men, the Export Managers Club of New York, and national banking, advertising and importing organizations will cooperate with the National Foreign Trade Council in the convention.

Bethlehem to Abandon Reading Bolt Works

The Bethlehem Steel Corporation has been gradually moving equipment from its bolt and rivet works at Reading, Pa., to the plant at Lebanon, Pa., doing the same class of work. Eventually the Reading plant will be dismantled and the site will be sold. The Reading works was acquired from the American Iron & Steel Mfg. Co. in 1917.

Youngstown Company to Build Tin Mills at Indiana Harbor

Shipments of equipment are beginning to arrive from Germany for the new seamless tube mill to be installed by the Youngstown Sheet & Tube Co. at its East Youngstown, Ohio, works. This plant is part of a $20,000,000 expansion program which has been under way for several years in the Youngstown and Chicago districts, and is scheduled to be completed by July 1. There was no special financing in this connection, but the program was financed from earnings, partly from surplus and partly from funds charged off to depreciation. The principal improvement in the Chicago district in 1926 by the Sheet & Tube company will be the construction of 24 tin mills at Indiana Harbor, Ind.

Bethlehem Earnings Increase

Net for 1925 Was $38,988,742 Compared with $33,996,489 in 1924—$5.30 a Common Share Available for Dividends

The Bethlehem Steel Corporation's earnings in the fourth quarter of 1925 were better than in the third quarter and for the year were substantially larger than in 1924. The report of President E. G. Grace showed total income for the year of $38,988,742, as compared with $33,996,489 in 1924, while fourth quarter income was $10,543,136 and in the third quarter, $8,337,762. The 1925 sales amounted to $273,025,320, against $267,688,973 in 1924.

Net income available for dividends was $13,858,196 in 1925 and $8,916,181 in 1924. The net income after payment of preferred dividends in 1925 was equal to $5.30 per share on the common stock, against $2.56 a share in 1924. For the fourth quarter earnings were equal to $1.77 a share, against 56c. a share in the third quarter.

President Grace in his report said that "the general outlook in the steel industry for at least the first half of 1926 is favorable. There is a large demand for steel products of all kinds, sufficient to support the present high rate of operations; there has been no apparent accumulation of stocks by consumers; there has been a general improvement in prices during the last three months and if the current demand continues there is every reason to expect still further improvement. This, together with the increased production from Bethlehem's new finishing units, should result in better earnings."

The value of Bethlehem's orders on hand as of Dec. 31, 1925, was $70,566,923, its operation averaged 77 per cent during the fourth quarter and current operations were reported to be 83 per cent. Cash expenditures for additions and improvements in 1925 totaled $34,466,613, all of which was provided for without new financing. The estimated cost to complete improvements in progress at the first of this year is $13,200,000.

The company's detailed statement is in the table.

	Fourth Quarter 1925	Third Quarter 1925	Year 1925	Year 1924
Total income of the corporation and its subsidiary companies	$10,543,136	$8,337,762	$38,988,742	$33,996,489
Less—Interest charges, including proportion of discount on, and expense of, bond issues	3,224,083	3,262,116	13,125,562	13,233,417
Balance	$7,319,053	$5,075,646	$25,863,180	$20,763,072
Deduct—Provision for depreciation, obsolescence and depletion	3,046,223	2,984,987	12,004,984	11,846,891
Net income for the period	$4,272,830	$2,090,659	$13,858,196	$8,916,181
Less—Dividends on stock of Bethlehem Steel Corporation:				
Preferred	$1,075,870	$1,075,774	$4,303,073	$4,300,583
Common	.....	.....	.....	2,247,571
Total	$1,075,870	$1,075,774	$4,303,073	$6,548,154
Surplus for the period	$3,196,960	$1,014,885	$9,555,123	$2,368,027

Jones & Laughlin Earns Over 9 Per Cent on Common Stock

The Jones & Laughlin Steel Corporation has inaugurated dividends on its common stock with a declaration of $1 a share payable March 1 to stockholders of record Feb. 15. The company changed its capital structure as of Jan. 1, 1924, increasing the capitalization from $30,000,000, all common stock, to $120,000,000 of equal amounts of common and 7 per cent cumulative preferred stock, and since had paid no dividends on the common stock.

The annual report of the company for the year ended Dec. 31 last shows net income after all charges of $9,854,494, which compares with $8,194,384 in 1924. After deducting the preferred dividends, calling for $4,200,000, there remained available for common stock dividends $5,654,494, or 9.42 per cent. The net surplus in 1924 was $3,994,384, or approximately 6.6 per cent on the common stock. For the two years the company has averaged 8 per cent earned on its common stock. The consolidated income account of the corporation and its subsidiary companies for 1925 and 1924 follows:

	1925	1924
Income after depreciation, depletion, taxes and interest	$9,954,494	$8,626,229
Adjustments	.....	331,845
Appropriations for pension fund	100,000	100,000
Net income	9,854,494	8,194,384

Superior Steel Earnings Improve

The annual report of the Superior Steel Corporation, Pittsburgh, for 1925, shows earnings of $1.22 a share on the 100,000 shares of common stock outstanding. The corporation's entire output consists of hot and cold rolled strip steel. In the first six months of last year there was a deficit of $33,521. There was a profit in third quarter, but the bulk of the year's earnings were made in the fourth quarter when $95,481 was shown as profit. Dividends were passed at a meeting early in 1925 owing to poor earnings at that time. The last payment of 75c. quarterly was made Dec. 22, 1924.

Inland Steel Co.'s 1925 Profit Smaller Than That of 1924

The Inland Steel Co.'s annual report shows a net income of $4,869,735 for 1925, as compared with $5,474,600 in 1924. The directors declared the regular quarterly dividend of 62½c. per share of common stock and $1.75 on the preferred. The company's consolidated income report gives the following figures:

	1925	1924	1923	1922
Net earn.	$7,980,316	$8,044,563	$7,673,408	*$2,434,023
Dpr., dpl., etc.	2,055,638	1,507,296	1,321,270	1,004,336
Bond int.	129,943	58,667	162,180	288,510
Fed. tax	669,000	716,000	650,000	.....
Em. pen. fd.	256,000	288,000	265,000	.....
Net. inc.	$4,869,735	$5,474,600	$5,274,958	$1,141,177
Pfd. divs.	700,000	700,000	525,000	.....
Surplus	$4,169,735	$4,774,600	$4,749,958	$1,141,177

*After Federal taxes.

Ohio Foundry Operations Improve

Operations of members of the Ohio State Foundrymen's Association showed an increase in December, standing at 77.9 per cent of normal, as compared with 75.4 per cent in November and 63 per cent in December, 1924. The total normal melt of the foundries reporting is 20,116 tons. The actual melt in December, 1925, was 15,678 tons. Stocks received in December increased to 73.9 per cent, as against 67.9 per cent in November, and 57 per cent in December, 1924. Stocks received embrace all grades of non-ferrous material, all grades of pig iron and all grades of scrap, ferrous and non-ferrous. The total for December, 1925, was 14,868 tons, which is 73.9 per cent of the normal melt of 20,116 tons.

Stocks on hand increased in December to 88.1 per cent from 83.2 per cent in November. They stood at 76 per cent in December, 1924. Stocks on hand include all the items covered by the classification "stocks received."

Operations in non-ferrous metals increased to 59.6 per cent of normal in December, as compared with 52 per cent in November and 48 per cent in December, 1924.

Steel Earnings Unsatisfactory

Net Earnings of Four Companies After Preferred Dividends 14½ Per Cent Above Those of 1924, Though Output Was 21 Per Cent Greater—Comparing 1925 and 1923, Substantially Equal in Production, Last Year Fell One-Fifth in Earnings

1923: Production of Steel Ingots

1923: Earnings Applicable to Common Stock

1924: Production of Steel Ingots

1924: Earnings Applicable to Common Stock

1925: Production of Steel Ingots

1925: Earnings Applicable to Common Stock

Preliminary Showing of Earnings of Steel Companies Compared with Production Indicate Something of the Effect of the 10 Per Cent Drop in Prices in the Three Years

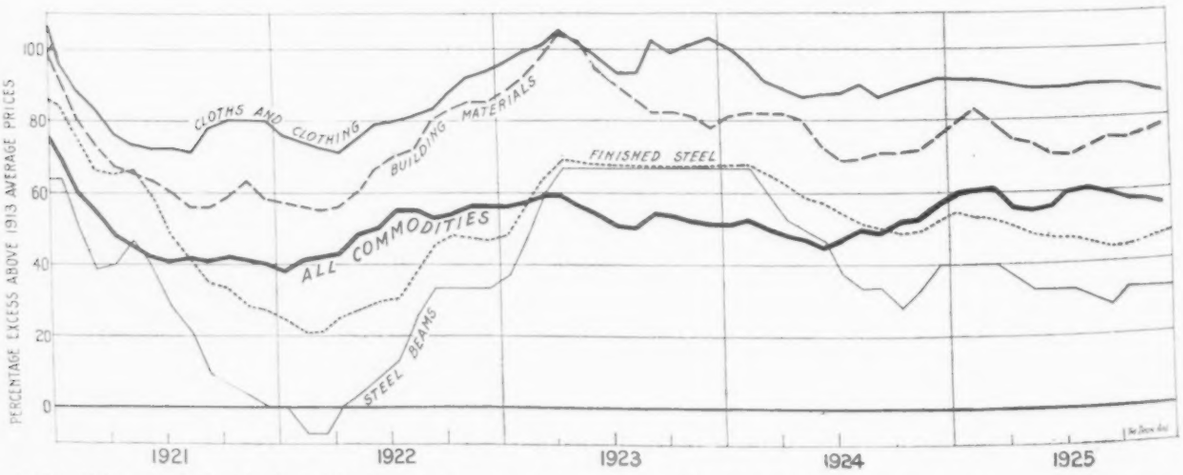
STEEL company earnings in 1925, as rounded out by a number of fourth quarter statements, show generally an improvement for the year over 1924, but on the face of the figures are not sufficiently great, taking into account the larger output last year as compared with that of 1924. The total amount of steel produced in 1925 will probably amount to 21 per cent more than that of the year preceding. Against this may be contrasted the earnings available for distribution to common stock holders. Such earnings in 1925 for the United States Steel, Bethlehem, Jones & Laughlin and Inland companies combined were $88,793,000. This is 14½ per cent over the $77,432,000 of earnings of the same four companies in 1925.

Incidentally, these earnings amounted to 11.3 per cent on the value of the common stock in 1925 and 9.9 per cent in 1924, but had the earnings increased in the same ratio as the output, the percentage would have been nearly 12 and the amount $94,500,000. Not only was the higher percentage return which goes with high rate of operations lost but prices were sufficiently lower in 1925 as against 1924 to overbalance any favorable effect of the record output of last year.

Further comparison, this of the years 1923 and 1925, also shows the unsatisfactory situation last year, bearing in mind that the production of these two years was substantially equal. The earnings, after the payment of preferred dividends, of the United States Steel, Bethlehem and Inland companies was $78,938,000 in 1925 against $98,293,000 in 1923. This shows a drop of $19,355,000 available for common stock, or nearly 20 per cent. These net earnings in 1923 represented 14.2 per cent of the common stock against 10.9 per cent in 1925.

Indications are that when returns are all in, the results will be even less favorable than here shown.

Five Years of Price Changes in Finished Steel and Steel Beams, Compared with Cloths and Clothing and Building Materials and with the General Average of "All Commodities" Reported by the United States Bureau of Labor Statistics



IT will be noted that both finished steel and steel beams are at a considerably lower level than is the case with the "all-commodity" group. They are much further below the recorded prices of building materials and of cloths and clothing. In other words, the prices of finished steel, and particularly of steel beams, have been more nearly liquidated, so to speak, than have the prices of most other commodities. Not once during the period surveyed has the price of steel beams been so high as either building materials or cloths and clothing. Not once did finished steel reach the level of clothing, while in only one month in many years did it exceed building materials. The prices of steel products have been consistently lower than those of other products. But this has been disastrous to profits

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New market for steel opened up with design of first all-steel motor-boats.—More than ton of stainless steel used in each new 32-ft. model: sheets and bars used.—Page 333.

Material increase in manganese content of steel for rails claimed to meet many of today's rail problems.—Economy in production and superiority of finished rail said to result from varying proportion of Mn according to C content.—Page 336.

Are wheel loads in railroad practice too large for rails?—No known grade of steel able to stand high wheel pressures common today: high carbon rails more prone to transverse fissures than those of lower carbon content.—Page 337.

Alloy steels for airplane valves must be able to withstand high temperatures, from 1470-1520 *deg. Fahr.*—Alloy high in Si and Cr, no W and little Mo found most satisfactory in series of tests.—Page 339.

Stanley Works, New Britain, Conn., replaces steam driven prime mover with its own hydroelectric power.—System can be tied in with New England high-tension power network.—Page 340.

"The need of the day is regulation of production to consumption"—says W. E. Creed, president Columbia Steel Corporation, San Francisco. Conditions on Pacific Coast favor growth of local steel plants.—Page 343.

"The best that can be done for the farmer is to give him adequate statistical information."—And thus enable him to employ sound cooperative production and distribution methods.—Page 361.

German engineer foresees increase in washing of coal for coke production in this country.—Higher grade coals becoming exhausted and specifications for clean coal becoming more severe.—Page 346.

With present construction costs and selling prices, a new blast furnace or steel plant would find it difficult to make money.—Consequently consolidation to effect operating economies is to be expected.—Page 360.

January pig iron output 2 *per cent under December.*—Daily rate 106,974 tons; total for month 3,316,201 tons, net loss of 10 furnaces by Feb. 1.—Page 364.

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Fourth quarter earnings of Bethlehem Steel Corporation almost equal to half of net in entire year 1924.—Inland Steel Co. earns less last year than in 1924.—Page 355.

German merger forming United Steelworks Co. is complete.—To be capitalized at about $200,000,000: economies in production and marketing to permit increased exports. —Page 351.

New method of heat treating for malleable iron.—Said to increase machineability and prevent excessive brittleness when hot-galvanized.—Page 691.

December business in a nutshell.—Iron and steel employment gains 2.9 per cent, payrolls increase 6.5 per cent over November: malleable casting output 4000 tons better than previous month: 50,000 fewer automobiles and 5000 fewer trucks made than in November: steel shipbuilding on upgrade; machinery exports gain.—Page 346, 349, 353, 363.

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February 4, 1926

Will Reprint the Argument for Pricing and Profits

NOT in many years, if ever, has THE IRON AGE uttered an editorial which brought the broad and favorable response that followed the printing on the front cover of the Annual Review and Statistical Number four weeks ago of the message of the Editor-in-Chief on the need of fair profits in industry. Letters of commendation, even yet being received, commonly bolster a hearty approval with an intimation of helping to correct the evils. And what is important is that they emanate from manufacturing companies somewhat removed from the primary line, or producers of the basic metal products, and thus it appears that the metal trades widely accept the dictum that efficiency in selling needs promotion as well as efficiency in production.

Last week we printed a complementary article in which W. L. Churchill discussed the question of proper pricing, and we have decided to supply reprints of this gratis to associations for distribution to their members, together with the discussion in the same issue by Charles Piez of manufacturing hazards and profits. The number to be printed will be limited largely by the requests received.

For News Summary See Reverse Side

GERMAN DUMPING

Preference in Cases of Export Business—French Exchange Dumping

WASHINGTON, Feb. 2.—The remarkable extent to which German iron and steel manufacturers are dumping their products in foreign markets is indicated by figures received by the Iron and Steel Division, Department of Commerce, from Commercial Attache C. E. Herring, Berlin.

In a report just received, Mr. Herring sets forth the January export rebates payable to manufacturers purchasing raw steel from the syndicate whose export committee has just fixed these rebates. The rebates are stated in marks per metric ton, and represent the amount under the domestic price that is paid for this steel when for export. In the case of merchant bars and hoop steel, for instance, Mr. Herring points out, the rebate represents 16 per cent of the fixed domestic price and for billets, 15 per cent.

The Commercial Attache says that it is interesting to note, however, that in only two instances has the December discount to exporting manufacturers been increased, while it has been decreased four times. The increases applied to boiler tubes, advanced from 40 to 45 marks, and boiler plates increased from 20 to 22 marks. The decreases were in black sheets, sizes 1 to 3 mm., having decreased from 15 to 12 marks; black sheets up to 1 mm., decreased from 15 to 10 marks; electrical sheets from 30 to 25; and transformer sheets from 40 to 25.

Mr. Herring says that the January rebate schedule indicates that theoretically the spread between domestic and export prices for "unmanufactured" iron and steel was not increased during December as the German finishing industries under their agreement with the steel syndicate are entitled to receive the full amount of this spread with respect to their exports of machinery and other "end products."

The report says, however, that it is doubtful whether this is the case, for French "exchange dumping" upon foreign markets has increased during the past few weeks and individual German manufacturers "have no doubt been tempted to meet it by further export discounts." The lowest rebate in the January list is 10 marks, and the highest 45 marks. At the present rate of exchange a mark (reichbank) is valued at 23.82c.

The report of Mr. Herring has aroused considerable interest as to whether or not steps will be taken through the customs division of the Treasury Department to learn whether German iron and steel products are being dumped into the United States. Should this prove to be the case it is believed that an effort will be made to institute an investigation looking to the application of the anti-dumping law.

Central Furnace to Put in By-Product Coke Plant

The Central Furnace Co., Massillon, Ohio, affiliated with the Central Steel Co., has included the building of its by-product coke plant in its 1926 program and expects to take bids for these this month. About fifty ovens will be built. When the company made its original plans for a blast furnace, which is nearing completion, it included the eventual building of a by-product coke plant, and it has just decided to go ahead with the latter project this year.

Expect Order to Put Jones & Laughlin Scale Into Effect

WASHINGTON, Feb. 2.—Because the railroads have informed the Interstate Commerce Commission that they will not publish rates in accordance with the Jones & Laughlin scale, except upon definite order, the commission is expected momentarily to issue such an order. The Jones & Laughlin scale, it will be recalled, was established in a decision issued in April, 1925. It provided for slight reductions in rates on iron and steel from the Pittsburgh district and moderate increases in rates from the Chicago district to St. Louis and points in Illinois and Indiana. The effect was to remove the commodity rates as they related to the Chicago district. From the outset the decision has been the subject of contention, and petitions were filed by the interested railroads, as well as the Jones & Laughlin Steel Corporation and other steel companies in an effort to have the case reopened for further hearing. At the same time, the Illinois Steel Co., among others, opposed reopening of the case.

Certainty that the Jones & Laughlin scale would be put in effect came with a recent decision of the commission denying the petitions for further hearing. The last extension granted by the commission for application of the Jones & Laughlin scale will expire Feb. 25. The dates had been postponed a number of times because of the conflict of opinion among iron and steel manufacturers and the railroads.

The railroads should have had the new tariffs on file with the commission before the end of January, in view of the fact that they were required to file them on statutory notice (30 days). The situation having reached its present point, it is believed that the only alternative is for the commission to issue its order to carry into full effect the decision in the Jones & Laughlin case. It is not believed the commission will make any modification whatsoever.

Meeting to Be Devoted to Power Problems

Conservation of power in industrial plants will be discussed at a conference to be held at the Engineers' Club of Philadelphia, Tuesday, Feb. 16. The program of the meeting is as follows:

Morning Session

"Power Transmission Economies," by William Staniar, transmission engineer DuPont company, Wilmington, Del.

"Lubrication and Bearings," by John D. Gill, Atlantic Refining Co., Philadelphia.

"Economy Due to Power Factor Correction," by Erb N. Dittenhofer, engineer research department of the Gotham Silk Hosiery Co., Inc., Philadelphia.

"Plant Illumination," by Ward Harrison, director of illuminating engineering, National Lamp Works, Nela Park, Cleveland.

Afternoon Session

"High Pressure Prime Movers in Industrial Plants," by Francis Hodgkinson, chief engineer of the Westinghouse Electric & Mfg. Co., East Pittsburgh.

"The Use of Exhaust Steam for Process Work," by Samuel M. Greene, consulting engineer, Springfield, Mass.

"Heat Insulation," by L. B. McMillan, chief engineer of Johns-Manville, Inc., New York, and R. H. Heilman, Mellon Institute of Industrial Research, Pittsburgh.

Evening Session

"Economic Factors Governing the Purchase or Generation of Power," by David Moffat Myers, consulting engineer, New York.

"Operating a Private Power Plant in Competition with Purchased Power," by Thomas V. Balch, supervising engineer, Equitable Office Building, New York.

"Operating with Purchased Power in Competition with Private Power," by Reginald P. Bolton, consulting engineer, New York.

Rolling Sheet Aluminum

The sheet aluminum rolling mill of the Sheet Aluminum Corporation, Jackson, Mich., has commenced operations. The Sheet Aluminum Corporation succeeds the Northern Mfg. Co., which was organized for plant construction purposes. The general sales offices are located in the Ford Building, Detroit, with W. J. Moore, vice-president in charge of sales. Mr. Moore also is president of the Allied Metal Products Corporation, Detroit, manufacturers of extruded aluminum moldings, bars and shapes.

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Cost of Building Steel Plants

WITH present construction costs, and selling prices in the past two years, there is no way of figuring that a new blast furnace plant or steel plant would yield a fair return on the investment. With reasonable allowance for idleness and depreciation the prospective return would be less than on a government bond.

A merchant furnace plant consisting of two 600-ton stacks, which would be a heavy addition to any producing district, for there are so many districts, would cost between $5,000,000 and $6,000,000 to be thoroughly modern and would take approximately $1 per ton of pig iron to pay 6 per cent on substantially full operation. With only moderate allowance for idleness and depreciation the interest burden would be close to $3, something quite impossible to expect.

As to a steel plant built from the ground up the case is much the same. It is an impossible project. Such new construction as occurs is under very special conditions.

The majority of steel producers, and some of the merchant furnaces, have been making what seem to be fair earnings, but they are really making their profits chiefly on the enhanced cost of duplication of their facilities.

Not a little money is being spent in blast furnace and steel works construction, but it is being spent by those already in the business, with one exception, that of an iron and steel consumer, the Ford Motor Co. That is an exception that tests the rule. If it is a good thing in general, why do not other steel consumers do the same?

A steel company may spend money in improvements. It may add a new product on the basis that it already has the organization and can carry the new venture when an individual company could not. It may spend money to increase capacity or to reduce cost of production. Such investments may be advantageous when new construction *ab initio* is out of the question.

These facts, which are amply well known in the trade, have a fundamental bearing upon the question, always up theoretically, and most of the time up practically in investigations by the courts or the Federal Trade Commission, whether consolidations in the iron and steel trade should be permitted.

The basis of the general question is fear that the total number of competitors in the industry may be reduced. What else can be expected but this? From time immemorial there has been a tendency to consolidate, and when there are no new entrants the number of producers naturally decreases.

The greatest number of blast furnaces in the United States was 716, in 1877 and again in 1881. The majority of these furnaces were owned individually. The greatest number of steel manufacturers was reached long ago, but that is no test, for wrought iron preceded steel, and it was very long ago that there were more wrought iron manufacturers, operating puddling furnaces, than there have lately been steel manufacturers.

Consolidation is a very old trend. Indisposition of capitalists to build new plants is a relatively new thing. The result is a decreasing number of producers. Alarm is misplaced when the trend is thus because it does not promise to pay to go into the business. If the producers were making unreasonable profits it would pay. That is the best test. When the large company produces and sells at figures a new and smaller company could not match, that is all the better for consumers, i. e., for the public.

HOLDING that any further increase in the cost of labor and materials is unwarranted by present day conditions and fearing that such may be a leading factor in bringing on a construction depression, the Associated General Contractors of America has passed a resolution that "any increase in cost of labor and materials should be resisted by those engaged in construction and that they should be supported in this effort by the public." General business is certainly with the contractors that it is important to keep industry on an even keel, free from excessive activity and resultant depression. Also, it fears for what might happen with any increase in labor rates and some materials relatively

much higher than those prevailing in other industries and at the very time many are saying construction activity has practically reached its peak.

What Ails the Western Farmer?

IT hardly needs to be said that the well-being of the farmer is a matter of concern to everybody. For one thing he is a large consumer of products into which iron and steel enter. Even his own agricultural products have to be transported in cars largely of steel, hauled by steel locomotives over steel rails. If the prosperity of the farmer wanes so will that of the railroad company, and so will that of the steel manufacturer.

Although the economic position of the farmers as a whole has improved during the last year or two this class of producers is still in trouble. The corn planters are in a lot of trouble, and there is a general agrarian discontent, which politically is formidable, which worries our present Administration more than anything else, and which affects everybody in a good many ways.

The economic difficulties of the farmer are of two kinds. In the language of business, one pertains to operating account and the other to capital account. Of course the two are related, just as they are in running a mine, or a metallurgical plant or factory.

Under the head of capital account the farmer is largely the victim of his own folly. Intoxicated by the high prices for his products during the war, he bought with borrowed money more land at high prices; he had to become an employer of labor in order to exploit his increased area and immediately began to suffer from rising wages. He became enamored with the automobile and the new life that it opened for him; and egged on his county government to build good roads and thus enormously increased his taxation. More or less incidentally he was at this time an easy mark for the promoter of wildcat companies in oil and other things.

In his conduct he was in principle not very different from the investor in the copper mining industry, and others, but where the one risked and eventually lost only a part of his principal, the farmer staked everything. Of course there were some conservative farmers, and they are now in a sound position, owning their property unencumbered, although perhaps it does not yield them so good a return as it ought to.

Deflation found the Western farmer heavily in debt, with his farm pledged as security and its market value immensely depreciated. He found himself, moreover, saddled with a heavy burden of taxation, which he himself had set up. The Federal income tax never fell upon him to any considerable extent.

So much for the farmer's capital account. In his operating account he has found himself obliged to pay high prices for the things he must buy and able to realize but relatively low prices for the things that he produces for sale. These conditions are purely economic and so quite dissociated from acts of folly. On the one hand the farmer, producing a surplus that must be exported, just like the copper producer, can get only the price that is established by the law of supply and demand in a world-wide market. On the other hand, also like the copper producer, in the matter of costs he suffers from the conditions that have aggrandized town labor.

Through his political leaders—the La Follettes, Brookharts, Shipsteads, et al.—he has pursued almost every unwise policy aiming at soaking the rich in income taxes and skinning the railroads in public service regulation and rate making. It has never entered the heads of any of them to abolish or modify the economic restrictions that have aided and abetted town labor, and in particular the labor unions, whose shrewd leaders have smugly smiled on the agrarian tomfollery.

No corrective economic measures can restore losses that have already been suffered. Even so radical a thinker as Henry George once said "it is no part of the business of society to save a fool from his folly." Nor can any government safely guarantee to any class of people that its business shall always be profitable. No magician's wand can wave away the incubus of debt that rests on the Western farmer. In respect to his capital account he must experience reorganization just as happens to unfortunate corporations from time to time.

In respect to his operations, however, a better deal can be given by a sounder economic policy in general. If prices cannot be raised, costs can be reduced. The best that can be done for the farmer is to give him adequate statistical information, and the organization of cooperation in both buying and selling, in financing, and in managerial direction. And finally, what is most important, we can work toward the abolition of economic restrictions tending to increase costs, for many of which the late Senator La Follette himself was responsible.

Nothing Settled in Coal

AROUSED by the coal strike of 1922, public sentiment demanded that something be done to right matters in this industry and assure the public a steady supply of this necessity at a reasonable cost. The Coal Commission was set up, at very considerable expense, and made a voluminous and presumably exhaustive report, but even at this late date nothing is settled about coal.

Congress is severely criticized for having done nothing, particularly when the commission's report suggested some lines of procedure, but then it was too much to expect action in that quarter.

As to the anthracite suspension, the cynical observation that a blunder is worse than a crime fits here. It is perfectly clear that there was a blunder on the part of the United Mine Workers. Long ago the strike was plainly lost so far as any benefit to the anthracite miners is concerned.

What is also clear is that the anthracite suspension did not help the union bituminous miners, as President Lewis must surely have expected it would. To sacrifice the anthracite miners for the benefit of the bituminous miners would be a crime, but here was a blunder, for the thing did not work out.

Not only did demand for bituminous coal, swelled by the needs of the east, fail to overflow to the union bituminous fields and thus give them a fair market, but it has not resulted in even moderate profits for a great many of the non-union operators

who have had heavy production. Domestic consumers in the east have had to pay high prices for a fuel which did not suit them, but very little of the fancy prices went to the producers. As usual when there is a dislocation in trade, middle interests secured profits which the normal conduct of business would not supply and which were not consistent with efficient service to the public.

The coal situation as it stood three years ago, with a large excess of productive capacity over the existing requirements, required a progressive development along two lines, an increase in coal requirements and a decrease in productive capacity by elimination of the less fit.

Meanwhile encouragement has been given to the use of fuel oil, and public sentiment has come to regard it as a misfortune to be a coal consumer. Coal is consumed under protest rather than cheerfully.

As to reduction in the practical coal producing capacity, what should have occurred was encouragement of the more fit producers and discouragement of the less fit. That is exactly what has not occurred. The more fit operations in union fields have had no encouragement, their properties on the whole deteriorating, while in the non-union fields the less fit properties have been encouraged.

Three years have thus elapsed without progress being made in righting the coal situation by natural means, the working of economic laws. However harsh the treatment might have been to some, the people as a whole would have benefited. The progress contemplated has been prevented by the United Mine Workers by the two courses of insisting upon the impossible Jacksonville scale and by bringing about this anthracite suspension. It is both crime and blunder.

Changes in Exports

MUCH has been said in recent weeks about the falling off in Japanese demand for American steel sheets. Figures for United States exports for the year just closed show that black steel sheets shipped to Japan amounted to 38,234 tons, compared with 101,606 tons in 1924. The decrease of 63,000 tons is only in part made good by an increase of 10,000 tons in purchases by all other countries, for the total shipments of black steel sheets were 53,000 tons less in 1925 than in 1924.

It was not only in black sheets that Japan's purchases fell off. In galvanized sheets the drop was from 15,340 to 3982 tons, while in tin plate, though the drop was not so sharp, there still was a loss of nearly 30 per cent from the 53,984 tons in 1924 to 38,794 tons last year. Japan's purchases of rails from the United States showed a similar decrease. Only 10,136 tons was taken in 1925 against nearly 34,000 tons in the preceding year.

If we group the four items mentioned and compare the Japanese purchases with those of Canada, we find a curious situation. Thus, in 1924 Japan took 204,873 tons, or more than twice Canada's 95,310 tons. In 1925 there was a complete turnabout, for Japan's 91,146 tons was far lower than Canada's 124,503 tons. For each thousand tons which Japan took in 1924, Canada took 465 tons; for each thousand tons in 1925 Canada took 1366 tons, or three times as large a proportion.

Of course, Canada's large share in the American export trade in iron and steel centers on plates, bars and structural shapes. These three items accounted for 220,000 tons in 1925, or about 36 per cent of Canada's entire purchases. Nevertheless, the comparison above made between Japan and Canada, showing the one country partially filling the gap caused by the decrease in exports to the other, is at least interesting.

In total exports of all items of iron and steel Canada in 1925 recorded an increase of about 12 per cent, the gain having been 64,000 tons. Japan on the other hand dropped off more than half, from 277,204 tons in 1924 to 132,674 tons last year. Thus Canada's gain was less than half the loss in Japanese trade.

South America in part made up the difference, for Argentina took 32,000 tons more in 1925 (more than half the gain being in galvanized sheets), and Colombia took 38,000 tons more. In spite of decreases in certain other quarters, however, Japan may properly be charged with the drop of 43,000 tons in total exports as between the two years.

A New Day in Metal Working

IN the early days of scientific management emphasis was placed upon the physical means of production. Then it was the human element, the methods of the worker, that was the point of concentration. Witness the attention given by management societies to personnel administration. The thoughtless placing of men in jobs for which they are temperamentally or otherwise unfit, the lack of adequate provision for their training and the absence of proper methods of maintaining good morale have been recognized for a long time as sources of waste.

Meanwhile marked improvement has occurred in mechanical equipment available for manufacture, with all that this promises in further reductions in unit costs and increases in profit margins. Indeed, as pointed out by Colonel Scott in his article on the "Machine Tool Progress in 1925," in these columns Jan. 7, the advance in design and productivity of machine tools since the war marks the beginning of a new metal-working era. This new era, he emphasizes, will see a greater volume of production from a smaller number of machine tools, occupying less space, employing fewer operators, requiring less conveying machinery and other forms of overhead service for continued operation and less skill on the part of the operator to produce a product of increased accuracy. Accordingly there is a saving in both productive and non-productive cost. The important thing also is that the improvements may be utilized by the smaller producer as well as by those engaged in mass production.

It follows that renewed consideration of mechanical equipment will feature programs of technical and trade associations and that the technical press will not be found wanting in doing its part to speed the new day.

CORRESPONDENCE

More About "The Field of the Jobber"

To the Editor: We have read with considerable interest your excellent editorial entitled, "The Field of the Jobber," [Dec. 3, 1925, page 1542] as well as Mr. Larkin's very good article commenting upon it. [Dec. 17, 1925, page 1925].

As pointed out in his article, we believe that the jobber's field is weakened to a considerable extent by the attitude and the actions of some of the mill representatives, but we are certain that the jobber can never be eliminated altogether.

In handling the warehousing of a large line of steel and wire we also are mill representatives for most of the lines we carry. It has been our experience that the warehouse is absolutely necessary for the development of any new account that does not start out on a strong financial basis. A very large number of nationally known products that are manufactured in our district today had very small beginnings. We can look back over our records and remember how a great number of these firms started with a very small shop and with no financial rating.

It is within the province of the warehouse man who is on the ground to go into these shops, study the moral character of the principals, the salability of the article they are making and after a close analysis we have generally found it possible to give these new firms a limited amount of credit where it would be an impossibility for the mill to do likewise. If the jobber were eliminated altogether it would force every mill in the country at the start to accept orders for steel in bar lots because such a firm could not even secure a bar of steel for experimental purposes. It would mean further that a number of these firms could not get started because they would have to deal on a cash basis with the mill. The mills are located centrally in certain districts and cannot have the facilities for coming into close contact with the various customers that the warehouse may have. If credit were denied to the average firm just about to start in business, a great number of the firms which make some of our best known products would never have been able to get started.

This of course is just another point in favor of the warehouse. There are a great number of points that could be enumerated, although we believe this is the strongest one.

We might mention that during the steel strike, the enterprising jobbers of the Middle West, anticipating conditions, moved thousands of tons of steel into the Middle Western district. Had they not done so, with the scramble that ensued later, it would have been impossible for a great number of the manufacturers of our best known products to have been able to keep their factories open.

This is another function of the warehouse man. He is supposed to be alert enough to anticipate conditions when the mills reach the point where their schedules are badly tied up. If the warehouse man has been sufficiently wide awake he will have the customer's size on hand in sufficient quantities to tide him over until he can secure mill deliveries. This, in our opinion, is the second most important function of the warehouse.

The writer has in mind the recent action of our own company where a precious metal was needed to prevent a shutdown in the plant of one of the largest industries in the world and where a small quantity such as a man could carry was sufficient to prevent a shutdown. We heard about this at eight o'clock in the evening at the home of one of our executives and succeeded in putting a man on the sleeper that night with the metal and he was in a plant 300 miles away the next morning and prevented this shutdown.

The writer is very confident that the steel warehouse is a fixed necessity and that most of the steel mills, as well as the steel buyers, know it but since the warehouse is obviously a fixture, Mr. Larkin is correct in his statement that the steel mills ought to recognize it as a unit and give us the protection and the encouragement to which we are entitled. F. E. BURK,

General manager, Central Steel & Wire Co.

Chicago, Jan. 12.

To Erect Billet and Rod Mills at Worcester

WORCESTER, Feb. 2.—The American Steel & Wire Co. will erect a continuous billet and rod mill at the South Works here, to replace mills which were built 20 to 40 years ago. At present there are two billet mills and three rod mills, two of the latter being continuous, and one part continuous, part Belgian. One billet mill will replace the present two, and one rod mill will replace the two continuous rod mills. The other, known as No. 2 rod mill, will be retained. The capacity will not be materially increased, remaining at about 600 tons a day, which is the capacity of the steel furnaces and blooming mill.

The replacements will include substituting electric motors for steam engines having a combined capacity of 12,000 hp., which will be scrapped. The present building which houses the condemned mills will serve the purposes of the new mills, in combination with one small additional building. It is proposed to keep the old mills operating so far as possible while the new are being installed.

"Flecto"—A New Type of Malleable Iron

A new metal called "Flecto" iron has been developed by the Ohio Brass Co., Mansfield, Ohio. It is a type of malleable iron which, because of certain heat treating processes, is claimed to be freed of all tendencies toward embrittlement when put through the process of hot-dip galvanizing. While retaining all the desirable characteristics of malleable iron, the Flecto process is claimed to so improve the metal that valuable properties are added, so that it may be considered practically a new metal. The process has been in use by the company for practically two years and most of its product has been so treated, but the company has withheld announcement concerning it until the metallurgy of the new metal has been thoroughly proved by its use in the field.

Among other benefits claimed to be bestowed upon the malleable iron are easier machinability, whether hot-dip galvanized or not. The process is available to other manufacturers under licensed arrangement.

Gain in Employment in December

Employment in iron and steel plants is increasing, according to figures of the United States Bureau of Labor Statistics. December returns from 211 establishments showed 285,968 employees on the payroll, compared with 277,980 in November. The gain of 2.9 per cent in number was accompanied by a gain of 6.5 per cent in payroll, which for one week went up from $8,350,451 to $8,889,534. The average pay envelope increased about 3½ per cent.

In 788 establishments producing foundry and machine shop products there was an increase in employment of 1.4 per cent in December, compared with November. According to figures of the United States Bureau of Labor Statistics, the number on the payroll went up from 202,025 to 204,790. At the same time there was an increase in the amount of the payroll from $5,984,574 to $6,180,782, or 3.3 per cent. The increase in average pay envelope was 1.9 per cent.

In Scientific Paper No. 518 of the Bureau of Standards, "Metallographic Etching Reagents, III: for Alloy Steels" are discussed by Edward C. Groesbeck.

Gain in Iron Output in January

Loss of 10 Active Furnaces Despite a Gain in Daily Rate of 2121 Tons or 2 Per Cent

WITH only one or two companies estimating the output for the last day of January, data collected largely by wire reveal that the pig iron production of the country for January showed a substantial increase over December. The daily rate last month was 2121 gross tons higher than in December, an increase of practically 2 per cent. In December the gain over November was 4 per cent. Corresponding gains in November and October were 3 per cent and 7.3 per cent respectively.

The production of coke pig iron for the 31 days in January was 3,316,201 tons or 106,974 tons per day as compared with 3,250,448 tons or 104,853 tons per day for the 31 days in December. The January daily average was 1746 tons less than for January, 1925.

Despite the gain recorded in output last month there was a decided loss in furnaces. Fifteen furnaces were blown out or banked and five were blown in, a net loss of 10. This compares with a net gain of 14 in December. The January loss is the first since June, 1925.

The number of furnaces active on Feb. 1 was 224 with an estimated daily capacity of 104,065 tons. This compares with an estimated capacity of 107,560 tons per day for the 234 furnaces active on Jan. 1. Of the 15 furnaces shut down, five were Steel Corporation stacks, six belong to independent steel companies and four were merchant. Of the five blown in last month, two were Steel Corporation furnaces and two were

Daily Rate of Pig Iron Production by Months—Gross Tons

	Steel Works	Merchant*	Total
January, 1925	86,856	21,864	108,720
February	90,707	24,084	114,791
March	90,741	24,234	114,975
April	83,827	24,805	108,632
May	74,415	20,127	94,542
June	70,452	18,663	89,115
July	65,715	20,221	85,936
August	68,530	18,711	87,241
September	70,300	20,573	90,873
October	76,464	21,064	97,528
November	77,262	23,505	100,767
December	81,552	23,301	104,853
January, 1926	83,867	23,107	106,974

*Includes pig iron made for the market by steel companies.

Pig Iron Production by Districts, Gross Tons

	Jan. (31 days)	Dec. (31 days)	Nov. (30 days)	Oct. (31 days)
New York	232,265	194,091	176,700	176,437
New Jersey	.....	.....	.....	.....
Lehigh Valley	84,111	83,016	83,180	87,438
Schuylkill Valley	72,396	71,288	65,388	67,077
Lower Susquehanna and Lebanon Valleys	44,637	40,086	39,187	39,157
Pittsburgh district	765,621	765,844	638,689	633,685
Shenango Valley	126,196	130,919	124,527	120,705
Western Pa.	121,523	115,105	109,276	102,214
Maryland, Virginia and Kentucky	85,179	79,209	74,500	97,656
Wheeling district	124,665	121,085	116,880	128,103
Mahoning Valley	306,921	278,935	271,885	294,613
Central and Northern Ohio	313,769	324,229	316,956	335,147
Southern Ohio	18,227	14,601	18,756	39,864
Illinois and Indiana	584,812	580,472	570,721	548,400
Mich., Minn., Mo., Wis., Colo. and Utah	151,715	151,298	138,017	128,804
Alabama	248,274	257,705	237,285	216,550
Tennessee	11,292	12,481	11,059	7,525
Total	3,316,201	3,250,448	3,023,006	3,023,370

Coke and Anthracite Furnaces in Blast

Furnaces	Total Stacks	Feb. 1 In Blast	Feb. 1 Capacity per Day	Jan. 1 In Blast	Jan. 1 Capacity per Day
New York:					
Buffalo	21	15	6,715	15	6,545
Other New York	4	2	775	2	600
New Jersey	4	0	....	0	....
Pennsylvania:					
Lehigh Valley	12	6	2,460	6	2,400
Spiegel	2	2	250	2	250
Schuylkill Valley	15	6	2,335	6	2,300
Lower Susquehanna	8	3	1,140	3	1,145
Ferromanganese	1	0	....	1	65
Lebanon Valley	4	1	175	1	165
Ferromanganese	2	1	80	1	85
Pittsburgh District	52	42	23,165	46	25,080
Ferro and Spiegel	4	2	360	2	395
Shenango Valley	15	7	3,340	7	3,950
Western Pa.	19	9	3,660	7	3,405
Ferro and Spiegel	2	2	315	2	300
Maryland	5	4	1,855	5	2,085
Ferromanganese	1	1	170	0	....
Wheeling District	13	9	4,240	8	3,905
Ohio:					
Mahoning Valley	26	18	9,900	17	9,695
Central and Northern	22	16	8,900	20	10,910
Southern	13	5	1,550	5	1,375
Illinois and Indiana	42	31	18,800	32	19,200
Mich., Wis. and Minn.	12	8	3,150	8	3,200
Colo., Mo. and Utah	7	4	1,740	4	1,680
The South:					
Virginia	17	0	....	1	135
Kentucky	7	2	630	2	670
Alabama	35	24	7,900	27	8,235
Ferromanganese	1	1	95	1	75
Tennessee	12	3	365	3	400
Total	378	224	104,065	234	107,560

Production of Steel Companies for Own Use—Gross Tons

	Total Iron, Spiegel and Ferro		Spiegeleisen and Ferromanganese*			
			1925		1926	
	1925	1926	Fe-Mn	Spiegel	Fe-Mn	Spiegel
Jan.	2,692,537	2,599,876	23,578	5,418	29,129	7,746
Feb.	2,539,785	.....	18,184	4,910	....	....
Mar.	2,812,995	.....	20,062	5,449	....	....
Apr.	2,514,828	.....	21,448	5,341	....	....
May	2,306,887	.....	22,679	5,294	....	....
June	2,113,566	.....	19,836	4,972	....	....
½ year	14,980,598	.....	125,787	31,384	....	....
July	2,037,160	.....	16,614	5,074	....	....
Aug.	2,124,439	.....	18,867	4,939	....	....
Sept.	2,109,205	.....	18,381	5,162	....	....
Oct.	2,370,382	.....	21,421	5,071	....	....
Nov.	2,317,888	.....	25,490	6,375	....	....
Dec.	2,528,120	.....	26,972	7,756	....	....
Year	28,467,792	.....	252,632	65,761	....	....

*Includes output of merchant furnaces.

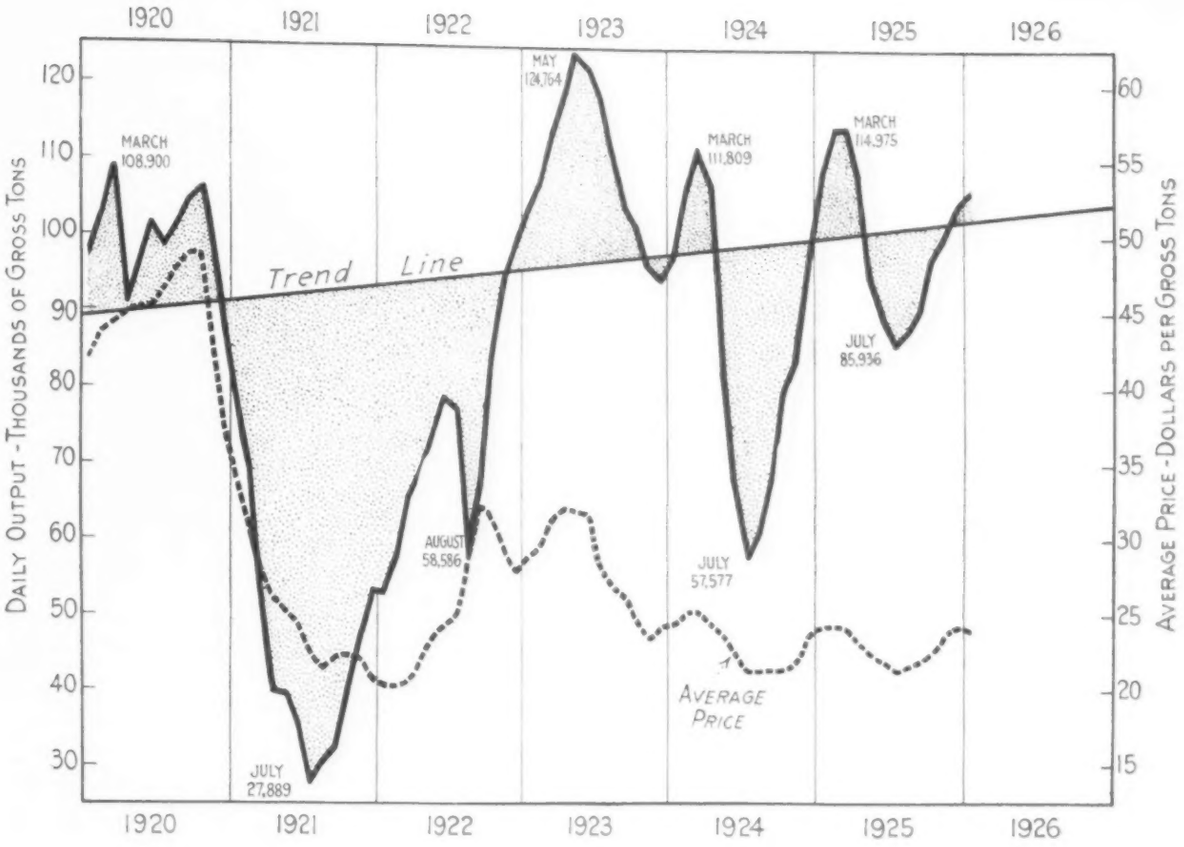
Production of Coke and Anthracite Pig Iron in United States by Months, Beginning Jan. 1, 1924—Gross Tons

	1924	1925	1926
Jan.	3,018,890	3,370,336	3,316,201
Feb.	3,074,757	3,214,143	.....
Mar.	3,466,086	3,564,247	.....
Apr.	3,233,428	3,258,958	.....
May	2,615,110	2,930,807	.....
June	2,026,221	2,673,457	.....
½ year	17,434,492	19,011,948	.....
July	1,784,899	2,664,024	.....
Aug.	1,887,145	2,704,476	.....
Sept.	2,053,264	2,726,198	.....
Oct.	2,477,127	3,023,370	.....
Nov.	2,509,673	3,023,006	.....
Dec.	2,961,702	3,250,448	.....
Year*	31,108,302	36,403,470	.....

*These totals do not include charcoal pig iron. The 1924 production of this iron was 212,710 tons.

Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1922—Gross Tons

	1922	1923	1924	1925	1926
Jan.	53,063	104,181	97,384	108,720	106,974
Feb.	58,214	106,935	106,026	114,791	.....
Mar.	65,675	113,673	111,809	114,975	.....
Apr.	69,070	118,324	107,781	108,632	.....
May	74,409	124,764	84,358	94,542	.....
June	78,701	122,548	67,541	89,115	.....
½ year	66,578	115,147	95,794	105,039	.....
July	77,592	118,656	57,577	85,936	.....
Aug.	58,586	111,274	60,875	87,241	.....
Sept.	67,791	104,184	68,442	90,873	.....
Oct.	85,092	101,586	79,907	97,528	.....
Nov.	94,990	96,476	83,656	100,767	.....
Dec.	99,577	94,225	95,539	104,853	.....
Year	73,645	109,713	85,075	99,831	.....



Daily Output in January About 2 Per Cent More Than in December; Prices Slightly Higher

Inclined line represents the gradually increasing theoretical needs of the country, and thus shows production is now above the so-called normal. Dotted line represents the average price in dollars per gross ton of No. 2 Southern at Cincinnati, No. 2 at Chicago and No. 2X at Philadelphia

merchant with one an independent steel company stack.

The ferromanganese production in January was 29,129 tons or in excess of any month in 1925 or 1924.

Among the furnaces blown in during January were the following: The Colonial and Punxy furnaces in western Pennsylvania; No. 1 Bellaire of the Carnegie Steel Co. in the Wheeling district; one Hubbard furnace of the Youngstown Sheet & Tube Co. in the Mahoning Valley and No. 7 Gary in the Chicago district.

Among the furnaces blown out or banked during January were the following: The Vesta furnace in the Lower Susquehanna Valley; No. 7 Carrie furnace of the Carnegie Steel Co., one Eliza furnace of the Jones & Laughlin Steel Corporation, one Midland furnace of the Pittsburgh Crucible Steel Co. and the Clinton furnace in the Pittsburgh district; one Newcastle furnace of the Carnegie Steel Co. and the Claire furnace in the Shenango Valley; one Low Moor furnace in Virginia; one furnace of the National Tube Co., two River furnaces of the McKinney Steel Co. and the Upson furnace in central and northern Ohio; one Iroquois furnace of the Youngstown Sheet & Tube Co. and No. 8 Gary furnace in the Chicago district, and No. 3 Ensley furnace of the Tennessee Coal, Iron & Railroad Co. in Alabama.

New England automobile manufacturing plants apparently are enjoying greater prosperity than they have in years. The Rolls-Royce of America, Inc., East Springfield, Mass., is operating its plant with an extra night force and is sold ahead four months. The company's 1925 sales were larger than for any previous year. Orders are being received at double the rate of a year ago.

Seeks Repeal of Import Tariff on Iron and Steel Products

WASHINGTON, Feb. 2.—Repeal of import rates on iron and steel products, described as "useless both from the standpoint of revenue and appreciable competition" is the object sought in a resolution drafted by Representative Hull, Democrat, of Tennessee. The resolution directs the Ways and Means Committee to hold hearings with a view to reporting out a bill that would call for repeal of such rates. A number of resolutions of similar character affecting other products have been prepared by Mr. Hull. It is not thought that there is the remotest chance of the resolutions being given any consideration.

Again Pushing Metric System Legislation

WASHINGTON, Feb. 2.—Proponents of the metric bill are again making an effort to have it written into law. It was introduced by Representative Britten and hearings on it were begun yesterday before the House Committee on Coinage, Weights and Measures, with those in favor of the measure appearing as witnesses. Among those most actively opposing the measure are manufacturers of machinery and machine tools, who point out that the change to a decimal system of weights and measures would cause great expense and produce confusion in merchandising their products, even though the measure calls for gradual adoption of metric units after a transition period of 10 years. It is declared that although manufacturers could continue to use any measure desired in production, commercial transactions would be placed on the decimal system and therefore be specified in that way.

Iron and Steel Markets

Shipments Have Gained on Orders

Some Signs of Increased Buying Activity as Production Is Slightly Curtailed—Lower Sheet Prices—Scrap Weaker—Coke Higher—Pig Iron Dull

WITH mills able to promise good deliveries and railroads to make them and with now no fear of price advances, buyers have little incentive to make heavy commitments. January was a good production and shipping month, but shipments ran slightly ahead of fresh orders, and so at the end of the month unfilled orders for the industry as a whole were somewhat reduced. Large scale restocking has not been regarded as a seasonal necessity.

Some buying of sheets by the automobile trade; specifications for rails and track accessories requiring 100 per cent operation of supplying mills, suggesting early as well as sustained activity of track maintenance work; increased jobber buying with evidence of low stocks, and a heavier demand for bolts and nuts, indicative of a wide consuming movement—these are developments which occur as steel ingot production suffers some curtailment from last week.

Several automobile makers succeeded in depressing body sheets $2 a ton, and the price situation in black and galvanized sheets has been shaken, with a loss of the advance made two months ago. It is not yet clear that the late November prices will have application widely in the sheet consuming trade.

Pig iron production in January amounted to 3,316,201 tons, or 106,974 tons per day. This was 2 per cent more than for December, for which the output was 3,250,448 tons, or 104,853 tons per day. However, a number of furnaces became inactive in the last week of the month, and the rate of output on Feb. 1 was 104,065 tons per day, against 107,560 tons on Jan. 1.

Five furnaces went in, but 15 went out in the month, some of these banked because of coke's being more remunerative than pig iron. Of the country's 378 furnaces 224 were in blast on Feb. 1 against 234 on Jan. 1.

Production of merchant furnaces fell off 194 tons a day, while steel company stacks showed an increased daily output over December of 2315 tons.

Dullness of the past two months in pig iron is giving that market a weak tone in most centers. The only real question of prices, however, refers to basic iron in the Valley, where $19 was done on iron approximating the standard.

Earnings statements so far available for 1925 show four companies had applicable to common dividends 14½ per cent more than at the end of 1924, but production last year averaged 21 per cent over 1924. Compared with 1923, a year of substantially the same output as 1925, so greatly did lower prices in 1925 affect earnings that there was available one-fifth less for common dividends in 1925 than in 1923.

Besides track work, illustrated by orders in Chicago for upward of 20,000 tons of angle bars, tie plates and the like, railroad business looks promising with fresh inquiries for 5700 cars, following orders for 11,000 cars in January against 9129 placed in January, 1925.

Steel building and bridge inquiries cover a number of large projects. In addition to the 20,000-ton Cleveland Union Station, railroad bridge work in that connection will call also for 20,000 tons. Three other structures there will take 6000 tons, one in Chicago 6500 tons and one in San Francisco 5000 tons. Contracts were closed in the past week for 30,000 tons, including 6000 tons for New York subway work and 3000 tons for New York Central bridges.

The Pacific Coast gives reports of good business activity. Plain material has suffered there from imports, though negligible at the moment, at prices $7 to $10 and $12 a ton below domestic prices, depending on lengths and sections. In the East several hundred tons of structural steel were sold for Florida at 2c., Philadelphia.

With $12 a ton obtainable for coke, for domestic use, there is little disposition to seek orders for metallurgical use. The result is that furnace and foundry grades have again advanced $1 a ton.

Scrap is generally weaker, heavy melting grade being off 25c. a ton at Cleveland, 50c. at Chicago and Buffalo, and $1 at Cincinnati.

Composite prices of THE IRON AGE for both pig iron and finished steel remain unchanged. Pig iron has stood at $21.54 per ton for ten successive weeks. One year ago it was $22.50. Finished steel at 2.439c. per lb., while the same as last week, is lower than early in January, when it stood at 2.453c. One year ago it was 2.546c.

Pittsburgh

Concession on Body Sheets — Steel Demand Lags—Large Pipe Line Projects

PITTSBURGH, Feb. 2.—Demand for steel still lags, and with some companies incoming business in the past week has been in the smallest volume since about the middle of December. January was a good production and shipping month, but the check-up shows that shipments ran slightly ahead of fresh orders and that unfilled orders accordingly were somewhat reduced. The demand for tin plate still is exceptionally active for this time of year and the appearance of some line pipe business gives the pipe market more cheerful tone, especially as there is a steady, if gradual, increase in the demand for well goods. Moreover, an advance of approximately 25c. per bbl. in Western oil prices, due to the steady decline in production over several weeks, encourages expectations of a very active spring drilling

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	Feb. 2, 1926	Jan. 26, 1926	Jan. 5, 1926	Feb. 3, 1925
No. 2X, Philadelphia‡	$24.26	$24.26	$24.26	$25.01
No. 2, Valley furnace†	20.50	20.50	20.50	22.00
No. 2, Southern, Cin'ti†	25.69	25.69	25.69	24.05
No. 2, Birmingham, Ala.†	22.00	22.00	22.00	20.00
No. 2 foundry, Ch'go furn.*	23.00	23.00	23.00	24.00
Basic, del'd, eastern Pa.	23.00	23.00	23.00	24.25
Basic, Valley furnace	20.00	20.00	20.00	22.00
Valley Bessemer del'd P'gh	22.76	22.76	22.76	24.76
Malleable, Chicago furn.*	23.00	23.00	23.00	24.00
Malleable, Valley	20.50	20.50	20.50	22.00
Gray forge, Pittsburgh	21.76	21.76	21.76	23.26
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	115.00	115.00	115.00	115.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	35.00	35.00	35.00	37.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	38.00
O.-h. sheet bars, P'gh	36.00	36.00	36.00	39.00
Forging billets, base, P'gh	40.00	40.00	40.00	42.50
O.-h. billets, Phila.	41.30	41.30	41.30	41.67
Wire rods, Pittsburgh	45.00	45.00	45.00	48.00
Light rails at mill	36.00	36.00	36.96	40.32
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	2.10
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.22	2.28
Iron bars, Chicago	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh	2.00	2.00	2.00	2.10
Steel bars, Chicago	2.10	2.10	2.10	2.20
Steel bars, New York	2.34	2.34	2.34	2.44
Tank plates, Pittsburgh	1.80	1.80	1.90	2.00
Tank plates, Chicago	2.10	2.10	2.10	2.30
Tank plates, New York	2.09	2.09	2.09	2.34
Beams, Pittsburgh	1.90	1.90	1.90	2.10
Beams, Chicago	2.10	2.10	2.10	2.30
Beams, New York	2.24	2.24	2.24	2.44
Steel hoops, Pittsburgh	2.50	2.50	2.50	2.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	Feb. 2, 1926	Jan. 26, 1926	Jan. 5, 1926	Feb. 3, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.35	3.35	3.35	3.50
Sheets, black, No. 28, Chicago dist. mill	3.45	3.45	3.45	3.70
Sheets, galv., No. 28, P'gh	4.60	4.60	4.60	4.75
Sheets, galv., No. 28, Chicago dist. mill	4.70	4.70	4.70	4.85
Sheets, blue, 9 & 10, P'gh	2.50	2.50	2.50	2.70
Sheets, blue, 9 & 10, Chicago dist. mill	2.60	2.60	2.60	2.80
Wire nails, Pittsburgh	2.65	2.65	2.65	2.85
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.95
Plain wire, Pittsburgh	2.50	2.50	2.50	2.60
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.70
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.55
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.65
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material Per Gross Ton:				
Carwheels, Chicago	$17.50	$18.00	$18.00	$19.50
Carwheels, Philadelphia	17.50	17.50	18.50	19.50
Heavy steel scrap, P'gh	18.00	18.00	19.00	20.50
Heavy steel scrap, Phila.	16.00	16.00	17.50	18.00
Heavy steel scrap, Ch'go	14.25	14.75	15.25	17.50
No. 1 cast, Pittsburgh	17.00	17.50	17.50	20.50
No. 1 cast, Philadelphia	18.00	18.00	18.50	19.00
No. 1 cast, Ch'go (net ton)	17.00	17.00	17.00	18.50
No. 1 RR. wrot., Phila.	18.00	18.00	18.50	20.50
No. 1 RR. wrot. Ch'go (net)	13.25	13.50	13.50	16.00
Coke, Connellsville,				
Per Net Ton at Oven:				
Furnace coke, prompt	$10.00	$9.00	$4.75	$3.75
Foundry coke, prompt	11.00	10.00	5.50	4.50
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.12½	14.12½	14.25	15.00
Electrolytic copper, refinery	13.75	13.75	13.87½	14.37½
Zinc, St. Louis	8.07½	8.05	8.67½	7.30
Zinc, New York	8.42½	8.40	9.02½	7.65
Lead, St. Louis	9.10	9.00	9.00	9.50
Lead, New York	9.25	9.25	9.25	9.75
Tin (Straits), New York	62.00	61.50	63.25	56.75
Antimony (Asiatic), N. Y.	21.50	21.00	25.00	18.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

THE IRON AGE Composite Prices

Finished Steel

Feb. 2, 1926, 2.439c. Per Lb.

One week ago	2.439c.
One month ago	2.453c.
One year ago	2.546c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

	High		Low	
1925	2.560c.,	Jan. 6	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15	2.460c.,	Oct. 14
1923	2.824c.,	April 24	2.446c.,	Jan. 2

Pig Iron

Feb. 2, 1926, $21.54 Per Gross Ton

One week ago	$21.54
One month ago	21.54
One year ago	22.50
10-year pre-war average	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

	High		Low	
1925	$22.50,	Jan. 13	$18.96,	July 7
1924	22.88,	Feb. 26	19.21,	Nov. 3
1923	30.86,	March 20	20.77,	Nov. 20

campaign. Railroad business for the first month of the year ran well ahead of the same month last year, and there seems to be a respectable amount of structural steel business.

The automobile industry, however, does not seem to be limbering up as rapidly as was expected and there is not only light demand for steel from that industry, but also considerable pressure against prices. Partial success seems to have marked the effort to force down the price of automobile body sheets, but on the material for cars outside of a well-known low-priced automobile, the sheet makers are still resisting the drive for concessions.

Failure of business to make a better showing possibly is partly due to weather conditions. Much snow and extremely cold weather have ruled much of the time in the past three weeks over a considerable part of the country and there is no doubt that distribution and consumption have been affected. There is also the fact that consumers were rather free in their specifications in December against low-priced orders and the interruption of the movement into consumption has left them with fair-sized stocks of moderate-priced steel.

Weakness in scrap prices is getting attention and if it is not actually affecting demand, it is encouraging conservative buying by suggesting that finished steel prices will not be materially higher in the near future. A decline of $1 a ton in scrap prices in this market does not seem to have established a trading level.

There has been some slight let-down in steel works operations in the Youngstown district in the past week, but in Pittsburgh, Johnstown and Wheeling, they are

holding to about the recent average and the combined areas are still turning out ingots at slightly under 85 per cent of practical capacity. Five fewer blast furnaces are in production today than a month ago, but of this number three are merely banked, this because of a more remunerative market in coke than pig iron.

Pig Iron.—Activity is still lacking in this market, but where the test has been made prices are holding well. Producers claim to be encountering no difficulty in obtaining $20.50, Valley furnace, for No. 2 foundry on such business as is coming out, although some iron of this grade and of Bessemer held by scrap iron dealers recently has been moved at less than the producers' prices. If there is any question about prices it refers to basic iron. An eastern Ohio steel company which recently bought 2000 tons of high sulphur basic iron at $18.75, Valley furnace, in the past week has bought 4000 tons of the same grade, running slightly over 1 per cent in silicon but standard in other respects, at $19, Valley furnace. In this district there was one sale of 1000 tons at $20, Valley furnace, and another of 500 tons at the same price, while 1500 tons of basic iron has been moved at $19.50, Valley furnace. There seems to be very firm adherence to $20, Valley furnace, for standard basic iron on the part of producers and unless there should be offerings by the steel companies, the expectation is that this price will be maintained. The high and profitable prices for coke have taken off enough merchant capacity to prevent much building up of stocks, and it is also contended that there is no profit, with coke at $4 a ton at ovens on contracts, in any grade of pig iron below $20 a ton. The stack of the Clinton Iron & Steel Co. was banked last Saturday morning for an indefinite period to release the coke for domestic use. The furnace of the Sharpsville Furnace Co., Sharpsville, Pa., has been banked for the past few days while a new gas washer is being installed. Of the 130 blast furnaces in this and nearby districts 88 are in production. This compares with 83 a month ago. W. P. Snyder & Co. make the average price of Bessemer iron from Valley furnaces for January $21 and of basic $20, unchanged from December last year.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$20.00
Bessemer	21.00
Gray forge	20.00
No. 2 foundry	20.50
No. 3 foundry	20.00
Malleable	20.50
Low phosphorus, copper free	$28.00 to 28.60

Ferroalloys.—The leading commercial producer of spiegeleisen appears well sold for the first half of this year on material of the higher manganese content and is not pressing for additional business. Lower grade material is still plentiful. Use of this alloy has been gaining steadily in the past two years and there has not been a corresponding gain in production for market. Consumers are easily able to secure their requirements of ferromanganese at unchanged prices. Most users of 50 per cent ferrosilicon contracted for their requirements for 1926 late last year, and business now is merely a matter of specification. It is said that specifications are coming along fairly steadily. Prices are given on page 371.

Semi-Finished Steel.—Makers of tin plate are unusually busy for this time of the year, the demand for that product being exceptionally good. This means good specifications against contracts for tin bars. The sheet mills are not doing as well and while sheet bars are moving steadily, there is no great pressure for deliveries. Strip makers also are steadily taking shipments on their contracts for billets and slabs, but are not reaching out for additional tonnages. So far as new business is concerned, the market is quiet, because there is no longer any apprehension among the non-integrated producers that they will not be able to get all the semi-finished steel they will need in the present quarter. Wire rods are holding at $45, base, Pittsburgh or Cleveland, and are moving steadily. Skelp is easy to get in small lots at 1.90c. and with plates weak, it is possible that large tonnages might bring out a lower price. Prices are given on page 371.

Wire Products.—Leading makers have issued new extras on coated nails, which from Feb. 1, are to be sold in 100-lb. kegs, instead of in count kegs, the practice of past years. These nails take the bright nail base, which at present is $2.65 per 100-lb. keg, f.o.b. Pittsburgh or Cleveland, $2.70 at Anderson Ind., and Chicago, $2.75 at Duluth and $2.80 at Birmingham and Worcester, Mass. On a pound basis, prices are now a little lower on some of the smaller sizes than on a count keg basis, but as a general proposition, the new prices reflect merely the extra weight. The general market is fairly active, but indicates no disposition on the part of distributers to abandon short range buying. The mills are being left to carry the stocks, since consumers believe that the producers can provide supplies promptly and in quantity as they are wanted. Mills are taking a firm stand as to prices particularly on nails, on which such weakness as there has been recently has been most common. Prices are given on page 369.

Tubular Goods.—The National Tube Co. this week will begin production against an order for 265 miles of 8-in. pipe from the Magnolia Pipe Line Co., Dallas, Tex., for a line from Eldorado to Beaumont. The general market also is enlivened by the appearance of some other pipe line business. The Plains Pipe Line Co., Wichita Falls, Tex., is in the market for 25 miles of 6-in. and the Continental Oil Co., Denver, Colo., is seeking 100 miles of 4-in. pipe, this for a line in New Mexico. There is gradual increase in the demand for oil country pipe, and in merchant pipe some disposition on the part of jobbers to prepare for spring demands. But the market is not active and in view of the ample productive capacity, a good market will exist only when consumptive demands are high. For the present at least, jobbers do not have to stock as heavily as they did when capacity was not sufficient to take care of peak demands. Prices are steady. Except possibly on seamless locomotive and superheater tubes, the boiler tube market still is a buyers' affair. Discounts are given on page 369.

Sheets.—A large maker of low-priced automobiles appears to have been able to secure a price of 4.30c., base, No. 22 gage, on automobile body sheets, and other builders feel that they should not be obliged to pay $4 a ton more despite more exacting requirements. Producers generally continue to hold out for 4.50c., base, and considerable business still is held up by the deadlock on prices. Reports about the operations of the automobile builders are mixed, but the ruling one is that most of the large producers are still on curtailed schedules. There is some irregularity in the prices of the common finishes of sheets, but the fact that sales are being made at the full quotations indicates that price cutting is neither very general nor very pronounced. Shipments of sheets last month ran ahead of incoming business, and with most makers a cut in unfilled orders has been the result. Closer gaging of production by actual orders is responsible for some slowing down in sheet mill operations, which this week are about 80 per cent of capacity. Prices are given on page 369.

Tin Plate.—Unusual activity for the time of year is still noted. General line tin plate is moving freely, and supplies for food containers are being taken out in greater volume than has been noted in many years at this season. The idea is strong that the demand for canned goods will continue to expand and that there is no danger in laying in tin plate stocks against future demands for food containers. Export inquiries are reported to be more numerous. A scarcity of stock items is still reported.

Cold-Finished Steel Bars and Shafting.—Specifications against contracts are steady enough, but do not run individually or collectively to large tonnage. The automobile industry is not recovering as rapidly as was expected and current orders reflect that condition. The market is firm at 2.50c., base Pittsburgh, on ordinary tonnages.

Steel and Iron Bars.—The steel bar market is holding steady at 2c., base Pittsburgh, on the great majority of ordinary tonnage lots. Secondary manufacturers are not getting such heavy orders that they are in urgent need of bar supplies and specifications reflect

Prices of Finished Iron and Steel Products (Carload Lots)

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	2.00c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.32c. to 2.42c.
Del'd New York	2.34c. to 2.44c.
Del'd Cleveland	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.30c. to 2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	2.00c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Phila'phia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.80c. to 1.90c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	1.99c. to 2.09c.
Del'd Philadelphia	2.07c. to 2.12c.
Del'd New York	2.09c. to 2.14c.
C.i.f. Pacific ports	2.30c. to 2.35c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c. to 2.00c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c. to 2.19c.
Del'd Philadelphia	2.22c. to 2.32c.
Del'd New York	2.24c. to 2.34c.
C.i.f. Pacific ports	2.35c. to 2.40c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.50c.
All gages, 6 in. and wider, P'gh	2.30c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.50c.
Bars, f.o.b. Chicago	2.50c.
Bars, Cleveland	2.55c.
Shafting, ground, f.o.b. mill	*2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.90c.
Strips, f.o.b. Cleveland mills	3.90c.
Strips, delivered Chicago	4.20c.
Strips, f.o.b. Worcester mills	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1 in	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh	$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.	66.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.50c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills	2.60c.
Nos. 9 and 10, del'd Phila'phia	2.82c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh	3.25c. to 3.35c.
No. 28, f.o.b. Ch'go dist. mill	3.45c.
No. 28, del'd Phila'phia	3.67c.

Galvanized

No. 28, f.o.b. Pittsburgh	4.50c. to 4.60c.
No. 28, f.o.b. Chicago dist. mill	4.70c.
No. 28, del'd Philadelphia	4.92c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.35c.
No. 28, f.o.b. Chicago dist. mill	3.45c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh	4.40c. to 4.50c.

Long Ternes

No. 28, 8-lb. coating, f.o.b. mill	4.85c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40
8-lb. coating I.C.	11.70
15-lb. coating I.C.	14.85
20-lb. coating I.C.	$16.20
25-lb. coating I.C.	17.90
30-lb. coating I.C.	19.45
40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers		Base Per 100 Lb.
2100*	(1¼% Nickel, 0.10% to 0.20% Carbon)	$3.20 to $3.25
2300	(3½% Nickel)	4.50 to 4.60
2500	(5% Nickel)	5.70 to 5.80
3100	(Nickel Chromium)	3.50 to 3.60
3200	(Nickel Chromium)	5.00 to 5.25
3300	(Nickel Chromium)	7.00 to 7.25
3400	(Nickel Chromium)	6.25 to 6.50
5100	(Chromium Steel)	3.50
5200*	(Chromium Steel)	7.00 to 7.50
6100	(Chrom. Vanadium bars)	4.20 to 4.30
6100	(Chrom. Vanad. spring steel)	3.80
9250	(Silicon Manganese spring steel)	3.20 to 3.25
	Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
	Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.45 to 4.55
	Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.25 to 4.35
	Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.40 to 3.50
	Chromium Molybdenum spring steel (1—1.25 Chrom., 0.30—0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill*	$43.00
Light (from billets), f.o.b. mill	$36.00 to 37.00
Light (from rail steel), f.o.b. mill	34.00 to 35.00
Light (from billets), f.o.b. Ch'go mill	36.00 to 38.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅝ in. and larger	$2.80 to $3.10
Spikes, ½ in. and smaller	3.00 to 3.50
Spikes, boat and barge	3.25
Track bolts, all sizes	4.00 to 4.50
Tie plates, steel	2.25 to 2.35
Angle bars	2.75

Welded Pipe

Base Discounts f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	⅛ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	13
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

¼	41	24½	¼ to ⅜	+19	+54
¼ to ⅜	47	30½	½	21	7
½	53	42½	¾	28	12
¾	58	47½	1 to 1½	30	14
1 to 1½	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	58	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 to 3 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1½ in.	52	3½ to 3½ in.	47
1¾ in.	36	4 in.	50
2 to 2¼ in.	31	4½, 5 and 6 in.	45
2½ to 2¾ in.	39		

Hot Rolled

2 and 2¼ in.	34	3¼ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base	50 to 55
Carbon, 0.30% to 0.40%, base	45 to 50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

that fact. Iron bars are steady in price and find a steady sale. Prices are given on page 369.

Structural Steel.—Specifications are reaching the mills in greater volume, and fabricating companies find that they are not able to get quite as early delivery promises as was the case a very short time ago. On sizable tonnages the market here still is 1.90c., base, on large structural shapes, with 2c. ruling on smaller lots.

Plates.—In the Pittsburgh district proper, local mills report no trouble in obtaining 1.90c., base Pittsburgh, on the general run of business. Outside this district, however, considerable Eastern mill competition is being encountered and more often than not 1.85c. is being done, while on really sizable lots the competitive price is 1.80c.

Rails and Track Supplies.—The aim of makers still is $36 per gross ton, mill, for billet rails, but competition for passing orders is keen enough to bring out concessions. Standard rails are moving well on 1926 contracts and specifications against contracts for spikes and other track accessories are coming along very steadily. Prices, which show no changes, are given on page 369.

Strip Steel.—January was a good shipping month, but unfilled orders declined somewhat because incoming business was not up to the shipments. The automobile industry is somewhat laggard in ordering material out, but other consumers, notably builders' hardware, office accessory and radio manufacturers, are ordering well. Recent prices on both hot and cold-rolled strips are well maintained.

Bolts, Nuts and Rivets.—Bolt and nut specifications are steady and prices are firm. There continues to be some i.regularity in the prices of large rivets, but most makers have been able to secure $2.60, base, per 100 lb., Pittsburgh, on contracts. Prices and discounts are given on page 371.

Old Material.—Recent price declines appear ineffective as a stimulus to business and such fresh changes as have occurred in prices have been down, reflecting the anxiety of dealers for sales. While one sale of 1000 tons of railroad heavy melting steel is noted at $18.50, the best bid now is $18 on this grade. Turnings are easier to secure, because there is less demand from northern Ohio steel mills. The market has been a big disappointment to dealers, most of whom expected a buying movement in January. Consumers seem to have succeeded in getting all the scrap they wanted by waiting, and the more frequent use of pig iron has also enabled them to stay out of the market.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton

Heavy melting steel	$18.00
No. 1 cast, cupola size	$17.00 to 17.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	20.00 to 21.00
Compressed sheet steel	16.50 to 17.00
Bundled sheets, sides and ends	15.50 to 16.00
Railroad knuckles and couplers	21.00 to 21.50
Railroad coil and leaf springs	21.00 to 21.50
Low phosphorus blooms and billet ends	23.00 to 23.50
Low phosphorus plates and other material	22.00 to 22.50
Low phosphorus punchings	21.00 to 21.50
Railroad malleable	18.50 to 19.00
Steel car axles	22.00 to 22.50
Cast iron wheels	18.00 to 18.50
Rolled steel wheels	21.00 to 21.50
Machine shop turnings	14.00 to 14.50
Short shoveling turnings	14.50 to 15.00
Sheet bar crops	20.00 to 21.00
Heavy steel axle turnings	17.00 to 17.50
Short mixed borings and turnings	14.50 to 15.00
Heavy breakable cast	16.00 to 16.50
Stove plate	14.00 to 14.50
Cast iron borings	14.50 to 15.00
No. 1 railroad wrought	14.00 to 14.50
No. 2 railroad wrought	18.00 to 18.50

Coke and Coal.—There is still a strong and active market for coke, and with producers able to get $12, or more, per ton for domestic sizes, there is not much disposition to seek business in coke for metallurgical use. The result is that furnace and foundry grades have advanced further since a week ago, with spot 48-hr. coke now quotable at $10 to $10.50 and 72-hr. coke at $11 to $11.50. The idea that the hard coal strike is near an end is strong, but it is realized that a settlement has not yet been effected and that it will be at least two weeks after hard coal mines resume before there will be anything like a normal supply of anthracite available. In view of the high prices of coke, it seems strange that the soft coal market is not stronger. Domestic sizes of soft coal are selling fairly well, but at very low prices on account of the abundant supply, and so much slack coal is being produced in the preparation of domestic sizes that there is a very low run-of-mine average. Steam slack coal still is obtainable around $1 per net ton at mines. Prices are given on page 371.

Cement Coated Nails On 100-lb. Basis

Effective Feb. 1, leading manufacturers of cement coated nails discontinued the practice of selling them on a count keg basis and have substituted the 100-lb. keg. The base price effective as of that date will be the plain wire nail base, which at present is $2.65, Pittsburgh or Cleveland, with variations of 5c. to 15c. per keg at other basing points. The change in the weight of the keg has necessitated a change in the advance over base for size. The framer of the card has aimed at a correction of the abuses possible under the former card, dated March 31, 1923. It seems that on inquiries calling for a number of sizes some producers were disposed to make prices lower than the ruling base price on the sizes carrying the larger extras and the mills that quoted a single base price on all sizes usually received the order only for those sizes on which the advances over base for size was small. The chance for a fair profit for the mills getting orders for the low extra sizes was slim. All manufacturers have not adopted the change, some holding to the former card and mode of selling, but naming a base of $2.25 per count keg, instead of $1.85, the recent count keg base.

It is unnecessary to show the entire card of new extras, as booklets giving this information are being distributed by the manufacturers. How the change works out, however, may be seen in the following comparison of the new and old extras on countersunk coated nails:

	New Base $2.65 Per 100 Lb.		Old Base $1.85 Per Count Keg		
Size	Size Extra Per 100 Lb.	Price, Per 100 Lb.	Size Extra Per Count Keg	Weight, Lb.	Price Per 100 Lb.
2d	$1.95	$4.60	$1.45	79	$4.18
3d	1.70	4.35	1.15	64	4.57
4d	1.20	3.85	0.80	61	4.34
5d	0.95	3.60	0.75	70	3.71
6d	0.80	3.45	0.60	65	3.77
7d	0.70	3.35	0.55	72	3.33
8d	0.50	3.15	0.30	71	3.03
9d	0.50	3.15	0.30	68	3.16
10d	0.40	3.05	0.20	63	3.25
12d	0.35	3.00	0.35	80	2.75
16d	0.30	2.95	0.30	80	2.70
20d	0.25	2.90	0.20	83	2.47
30d	0.25	2.90	0.20	84	2.44
40d	0.25	2.90	0.20	82	2.50
50d	0.25	2.90	0.20	79	2.58
60d	0.25	2.90	0.20	82	2.50

Bethlehem Merger Hearings at Pittsburgh

PITTSBURGH, Feb. 1.—Hearings in the Bethlehem merger case before Examiner George McCorkle of the Federal Trade Commission began here last week. William S. Boyd, purchasing agent, Blaw-Knox Co., Howard S. Peichtel, manager of purchases, Pittsburgh-Des Moines Co., Charles Clark, purchasing agent, Pittsburgh Forge & Iron Co., George E. Klingelhoefer, president, Pittsburgh Bridge & Iron Co., Joseph W. Littell, Penn Bridge Co., J. C. Smith, manager of sales, Oliver Iron & Steel Corporation, William Wharton of William Wharton, Jr. Co., Easton, Pa., and Jerome Wolff, sales manager Guibert Steel Co., have been examined as to their experiences in purchases of steel before and after the absorption of the Lackawanna Steel Co. and the Midvale Steel & Ordnance Co. by the Bethlehem Steel Co. The effort of Attorney B. B. Bane of the Commission is to show that competition has been restricted by the combination.

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over	$35.00
Rolling, 2-in. and smaller	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
6 in. x 2 in. and smaller	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base, No. 5 to ⅜-in.	$45.00
Common soft, coarser than ⅜-in.	$2.50 over base
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	3.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	45c.
Manganese ore, Brazilian or Indian, nominal	42c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates	$12.50 to $14.00
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.00to $23.00
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	55c. to 60c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$10.00 to $10.50
Foundry, f.o.b. Connellsville prompt	11.00 to 11.50
Foundry, by-product, Ch'go ovens	10.50
Foundry, by-product, New England, del'd	13.00
Foundry, by-product, Newark or Jersey City, delivered	11.52
Foundry, Birmingham	5.75 to 6.50
Foundry, by-product, St. Louis or Granite City	10.00

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	$1.50 to $2.10
Mine run coking coal, f.o.b. W. Pa. mines	1.90 to 2.25
Mine run gas coal, f.o.b. W. Pa. mines	2.00 to 2.25
Steam slack, f.o.b. W. Pa. mines	1.00 to 1.15
Gas slack, f.o.b. W. Pa. mines	1.25

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd	$115.00
Foreign, 80%, Atlantic or Gulf port, duty paid	115.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$32.00 to $34.00
Domestic, 16 to 19%	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	$85.00
75%	145.00

	Per Gross Ton Furnace		*Per Gross Ton Furnace*
10%	$42.00	12%	$42.00
11%	42.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

	Per Gross Ton		*Per Gross Ton*
10%	$36.00	12%	$40.00
11%	38.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

	Per Gross Ton		*Per Gross Ton*
6%	$28.50	10%	$34.00
7%	29.50	11%	36.00
8%	30.50	12%	38.00
9%	32.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.15 to $1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electrolytic, or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electrolytic, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$17.50 to $18.00
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$17.50 to $18.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works High Duty	Moderate Duty
Pennsylvania	$43.00 to $46.00	$40.00 to $43.00
Maryland	48.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton		6.50 to 7.50

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00
Chicago	49.00
Birmingham	54.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.	$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$48.00

Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60 and 10
Machine bolts, all sizes, cut threads	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10
Carriage bolts, cut threads, all sizes	50 and 10
Eagle carriage bolts	65 and 10
Lag bolts	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅝ x 4 in.,	45, 10 and 5
Larger and longer sizes	45, 10 and 5
Bolt ends with hot-pressed nuts	50, 10 and 10
Bolt ends with cold-pressed nuts	45, 10 and 5
Hot-pressed nuts, blank and tapped, square,	4c. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.40c. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. off list
Washers*	6.50c. to 6.25c. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent less than above for less than car lots. On hot-pressed and cold-punched nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
⅞ in. and smaller, U. S. S.	80, 10 and 5
1 in. and larger, U. S. S.	75, 10 and 5
Small sizes, S. A. E.	80, 10, 10 and 5
S. A. E., ⅝ in. and larger	75, 10, 10 and 5
Stove bolts in packages	80, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	U.S.S.		Per 100 Net S.A.E.	U.S.S.
¼-in.	$0.44	$0.44	⅞-in.	$2.35	$2.40
5/16-in.	0.515	0.515	⅞-in.	3.60	3.60
⅜-in.	0.62	0.66	1-in.	5.65	5.80
7/16-in.	0.79	0.90	1⅛-in.	8.90	8.90
½-in.	1.01	1.05	1¼-in.	12.60	13.10
9/16-in.	1.38	1.42	1⅜-in.	18.35	18.35
⅝-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.60
F.o.b. Cleveland	2.70
F.o.b. Chicago	2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70 and 10
F.o.b. Cleveland	70 and 10
F.o.b. Chicago	70 and 10 to 70 and 5

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	80 and 10
Milled standard set screws, case hardened	80
Milled headless set screws, cut thread	80
Upset hex. head cap screws, U. S. S. thread,	80, 10 and 10
Upset hex. cap screws, S. A. E. thread,	80 and 10
Upset set screws	80, 10 and 10 to 80, 10 and 5
Milled studs	70 and 5

Chicago

Heavy Rail Specifications — Furnace Blown In—Scrap Declines

CHICAGO, Feb. 2.—Production has again been increased by the blowing in of another stack by the Steel Corporation at South Chicago. The count of active corporation furnaces now includes 11 at Gary, seven at South Chicago and one at Joliet, or a total of 19 of 27. The Wisconsin Steel Works has three stacks in blast and the Inland Steel Co. has the same number active. The two Youngstown stacks at Indiana Harbor are blowing, although the production from one is being diverted to the merchant iron trade. Out of 35 steel works stacks in the district 27 are now active. Ingot output is unchanged, with the leading producers slightly above 88 per cent and the Inland Steel Co., between 80 and 85 per cent. The latter company does not contemplate a change in the rate of ingot production until it is able to blow in its fourth stack, which is now under construction.

Rail mills are operating close to their rated capacity on specifications, against fall purchases. The trade regards this as an indication that railroad maintenance work will be extensive and that further buying of track supplies by the railroads will develop some time during the first half of the year.

New buying of finished steel products continues to lag, although makers report that fresh business booked in January was about equal to shipments. Specifications are running well ahead of shipments, but this is due in some measure to the release of rail and track accessory tonnages. Prices are being well maintained, although in some quarters there is talk of concessions being made on sheets. Deliveries are holding steady, except on soft steel bars on which the best shipment is 45 days if specifications coincide with rolling schedules.

The trend of the scrap market is downward and indications are that consumption is lagging behind the available supply of practically all grades listed.

Pig Iron.—The market is firm at $23, local furnace, for No. 2 foundry. Shipments during January exceeded those for December by a small percentage. Furnace stocks, which had been balanced somewhat over the holiday period, are again depleted of certain grades. It is the impression of sellers that users are not stocking, but that iron being delivered on current specifications is going directly into production. Spot buying has been fairly active and in such tonnages as to indicate that many users are buying from hand-to-mouth in order to watch the trend of the market before closing for their second quarter requirements. A Chicago user is inquiring for 1000 tons of Northern iron and a Michigan melter will take a similar tonnage for delivery over the remainder of this quarter and the first half of the second quarter. It is reported that shipments of pig iron, 2.75 to 3.25 per cent silicon, are coming from producing points beyond Chicago and are destined for points West.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	$23.00
Northern No. 1 foundry, sil. 2.25 to 2.75	23.50
Malleable, not over 2.25 sil.	23.00
High phosphorus	23.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	$27.01 to 28.01
Southern No. 2 (barge and rail)	26.18 to 27.18
Low phos., sil. 1 to 2 per cent, copper free	31.20 to 31.70
Silvery, sil. 8 per cent	35.29
Ferrosilicon, 14 to 16 per cent.	48.79

Ferroalloys.—The market is quiet, with prices unchanged.

We quote 80 per cent ferromanganese, $122.56, delivered Chicago; 50 per cent ferrosilicon, $85, delivered; spiegeleisen, 18 to 22 per cent, $41.76, delivered Chicago.

Sheets.—New business continues to run light, although shipping orders still support close to capacity operations. The bulk of specifications now being passed to entry at the mills were issued early in January and are for delivery during February and March. On this basis makers admit that the extent of operations in the immediate future is uncertain. Although prices are unchanged, competition for new business is very keen and occasional concessions are reported.

Chicago delivered prices from mill are 3.50c. for No. 28 black, 2.65c. for No. 10 blue annealed and 4.75c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.50c. base for blue annealed, 4.10c. base for black, and 5.25c. base for galvanized.

Bars.—Soft steel bar mills are busy, and deliveries are said to range from 45 to 60 days. New business is about equal to shipments and specifications are reported as being slightly in excess of shipments. In the immediate Chicago territory the mill price of 2.10c., Chicago, is well maintained. Business in bar iron was unusually heavy during the week, the bulk of it emanating from the railroads. Specifications are liberal and a fair tonnage is still on inquiry. The price of 2c., Chicago, is steady. Rail steel bars are now quoted at 2c., Chicago. Bed manufacturers are specifying more freely, and the barn equipment business is reported as active for the season. New buying is comparatively light, although specifications are said to be in excess of shipments. Deliveries now range from three to four weeks. Mill operations are unchanged, with one maker still on double turn.

Mill prices are: Mild steel bars, 2.10c., Chicago; common bar iron, 2c., Chicago; rail steel bars, 2c. Chicago.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.60c. for rounds and hexagons and 4.10c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c., Chicago warehouse.

Rails and Track Supplies.—Specifications are heavier and makers are looking forward to a good year in railroad maintenance, with the prospect of a substantial buying movement in track steel this spring. Recent shipping orders are pressing the mills, which are now operating close to 100 per cent of capacity. Actual rail buying during the week was in small volume. On the other hand, between 18,000 and 20,000 tons of angle bars, tie plates, bolts and spikes was placed. The Mobile & Ohio is reported in the market for 4000 kegs of spikes and 600 kegs of bolts. There has been no further change in the price of steel tie plates, which are quoted at 2.25c. to 2.35c., f.o.b. mill.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, $36 to $38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c., mill; track bolts with square nuts, 3.90c. to 4c., mill; steel tie plates, 2.25c. to 2.35c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of Chicago warehouse at 3.55c., base, and track bolts, 4.55c., base.

Cast Iron Pipe.—This market has gathered some strength and quotations are now on the basis of $41 to $42, Birmingham for 6-in. and larger pipe. The Chicago delivered quotation is $49.20 to $50.20. Lettings for the week were not heavy, although inquiry is somewhat more active than it has been during the past few weeks. Eau Claire, Wis., placed 90 tons of 6-in. Class C pipe with the W. H. Hobbs Supply Co., Eau Claire, at $42 per ton, base Birmingham. Madison, Wis., let 299 tons for a new sewage disposal plant to the United States Cast Iron Pipe & Foundry Co., and about 200 tons of water mains to the American Cast Iron Pipe Co. The National Cast Iron Pipe Co. took 235 tons of 6 and 8-in. Class B pipe for Sandusky, Ohio, and 600 tons of 4, 6, and 10-in. Class B pipe for Lima, Ohio. Decatur, Ill., is expected to close this week on 200 tons, and Harvard, Ill., is in the market for 600 tons in miscellaneous sizes. It is reported that St. Louis will take bids on 3000 tons of pipe, ranging in size from 12-in. to 36-in.

We quote per net ton, delivered Chicago, as follows: Water pipe, 4-in., $54.20; 6-in. and over, $49.20 to $50.20; Class A and gas pipe, $4 extra.

Bolts, Nuts and Rivets.—The demand for small rivets has shown a substantial increase, and discounts are firm at 70 and 10 to 70 and 5 off list. Specifications for bolts and nuts are well maintained, and makers report that the volume of specifications for January was about equal to that for December. Prices, as a general rule, are steady and unchanged.

Jobbers quote structural rivets, 3.50c. per lb.; boiler rivets, 3.70c. per lb.; machine bolts up to ⅜ x 4 in., 50 and 5 per cent off; larger sizes, 50 and 5 off; carriage bolts up to ⅜ x 4, 47½ off; larger sizes, 47½ off; hot-pressed nuts, square, tapped or blank, $3.25 off; hot-pressed nuts, hexagon, tapped or blank, $3.75 off; coach or lag screws, 55 and 5 per cent off.

Wire Products.—Cement coated nails are now quoted on the base of common wire nails, which is $2.75 per 100-lb. keg, Chicago district mill. Special extras on cement coated nails are 25c. per 100 lb., for barbed, 15c. per 100 lb. for special heads, and 15c. per 100-lb. for special points. The Chicago delivered price on plain wire is firm at $2.55 per 100 lb. Makers of wire products report that the volume of business both from the manufacturing trade and jobbers is well maintained and that specifications are being received at an unchanged rate. Mill stocks are said to be normal and well balanced. Mill operations are unchanged at between 70 and 75 per cent of capacity. Prices are shown on page 369.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, $3.30 per 100 lb.; common wire nails, $3.05 per keg; cement-coated nails, $2.05 to $2.20 per count keg.

Fluorspar.—Demand is fair and stocks at mines are reported low. Quotations are now being made at $18, base Illinois and Kentucky mines.

Structural Material.—The past week has not brought forth any outstanding business, although a fair number of small tonnage projects have been closed. New inquiries, however, total more than 8000 tons, a sport auditorium alone accounting for 6500 tons. Fabricators find that prices are holding, but with competition keen, they do not look for advances in the near future. The mill quotation on plain material is steady at 2.10c., Chicago.

The mill quotation on plain material is 2.10c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Plates.—Approximately 30,000 tons of plates, shapes and bars will be required for cars on inquiry by railroads with terminals at Chicago. There is considerable speculation as to the probable disposition of the cars to be bought by the Southern Pacific, which will take 20,000 tons of material, and the 5041 refrigerator cars, requiring 50,000 tons, which the Pacific Fruit Express is expected to place at an early date. Chicago car builders believe that the latter cars may be split in one of two ways, either that about two-thirds of the order will be placed with Chicago district plants or that a division will be made among not less than six builders located in the Far West and the Middle West. There were no outstanding car contracts placed in this district during the week. Orders for oil storage tanks have been very light since the first of the year, although it is reported that several Western oil producers may soon enter the market. Chicago mill prices remain unchanged at 2.10c., although keen competition in the outlying districts is reported.

The mill quotation is 2.10c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Cold-Rolled Strips.—This commodity is in good demand and mills are said to be operating at close to capacity. The ruling price remains 4.20c., delivered Chicago.

Reinforcing Bars.—Actual placements for the week were small in the aggregate, consisting principally of a few contracts of less than 100 tons each. New inquiries are fairly numerous, and several fresh projects in prospect call for a substantial tonnage of bars. Among these is the ninth section of the South Water Street double-decking project. Dealers report that a canvass of architects indicates that they have a large amount of work on the boards. Architects, however, are slow in awarding work to contractors, thus retarding the letting of steel to the bar dealers. A few projects are being held up because financial details have not been worked out. Cold weather during the latter part of January is said to have retarded shipments from the bar bending shops. Billet steel reinforcing bars are unchanged at 2.60c., Chicago warehouse. New contracts and fresh inquiries are shown on page 382.

Hot-Rolled Strips.—Demand is fair and prices are steady. Although automobile makers have been liberal in specifying, it is believed that the actual trend of motor car demand will not become apparent until after the close of the Chicago automobile show which is now in progress.

Coke.—All ovens in this district are lighted, and shipments are said to equal production. Prices, which are unchanged, are shown on page 371.

Old Material.—The scrap market has again lost ground and many grades are quoted below the prevailing prices of last week. Heavy melting steel is off 50c., now ranging from $14.25 to $14.50, and it is reported that one large user has refused offers of $14.50. Dealers are pessimistic over the outlook, and it is rather freely predicted that heavy melting steel may recede still further. Buyers are remaining out of the market and dealers, feeling the pressure of the situation, are bringing out material and taking the best prices offered. Although railroad lists are not heavier than usual for this time of the year, it is noticeable that tonnages are appearing on track within a very short time after lists are closed. One list of 2000 tons of rerolling rails was delivered within a week after the dealer had signed the contract. Another disturbing factor, which is adding more scrap to a market already over supplied, is the fact that numerous manufacturing plants which have enjoyed a good rate of production for some time, are now cleaning up their scrap accumulations. Railroad lists for the week include 36,000 tons offered by the Pennsylvania, 5000 tons by the New York Central, 5000 tons by the Chicago & North Western, 3000 tons by the Big Four, 4300 tons by the Burlington, and 1200 tons by the Chicago, Milwaukee & St. Paul.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

	Per Gross Ton	
Iron rails	$18.00 to	$18.50
Cast iron car wheels	17.50 to	18.00
Relaying rails, 56 lb. to 60 lb.	25.00 to	26.00
Relaying rails, 65 lb. and heavier	26.00 to	31.00
Forged steel car wheels	18.00 to	18.50
Railroad tires, charging box size	18.50 to	19.00
Railroad leaf springs, cut apart	18.50 to	19.50
Rails for rolling	17.00 to	17.50
Steel rails, less than 3 ft	18.00 to	18.50
Heavy melting steel	14.25 to	14.75
Frogs, switches and guards, cut apart	16.00 to	16.50
Shoveling steel	14.25 to	14.50
Drop forge flashings	11.00 to	11.50
Hydraulic compressed sheets	12.50 to	13.00
Axle turnings	15.00 to	15.50
Steel angle bars	17.50 to	18.00
Steel knuckles and couplers	17.50 to	18.00
Coil springs	19.00 to	19.50
Low phos. punchings	17.00 to	17.50
Machine shop turnings	9.25 to	9.75
Cast borings	12.75 to	13.25
Short shoveling turnings	12.75 to	13.25
Railroad malleable	17.75 to	18.25
Agricultural malleable	16.50 to	17.00
Per Net Ton		
Iron angle and splice bars	16.25 to	16.75
Iron arch bars and transoms	20.75 to	21.25
Iron car axles	25.50 to	26.00
Steel car axles	17.50 to	18.00
No. 1 busheling	11.50 to	12.00
No. 2 busheling	9.25 to	9.75
Pipes and flues	10.50 to	11.00
No. 1 railroad wrought	13.25 to	13.75
No. 2 railroad wrought	12.75 to	13.25
No. 1 machinery cast	17.00 to	17.50
No. 1 railroad cast	16.00 to	16.50
No. 1 agricultural cast	16.00 to	16.50
Locomotive tires, smooth	16.50 to	17.00
Stove plate	14.50 to	15.00
Grate bars	13.25 to	13.75
Brake shoes	12.75 to	13.25

"An Investigation of Charcoal and Coke Pig Irons" is the title of an engineering research bulletin No. 1 (revised edition) issued by the department of engineering research, University of Michigan, Ann Arbor, Mich. The author is W. E. Jominy.

Birmingham

More Pig Iron Inquiry—Scrap Weakens —Steel Output Large

BIRMINGHAM, Feb. 2.—The second month of first quarter promises to be more active in the pig iron market than the first. Inquiries are being received from the larger consumers which are expected to result in business. While there have been scattered indications of weakening, on the whole the pig iron market continues firm. Quotations range from $22 to $23 per ton, Birmingham, on No. 2 foundry, with the lower price ruling on all except small orders. Foundries are not booking new business in the volume expected. Cast iron pressure pipe makers, however, are feeling better over prospects in their field. Soil pipe and fittings manufacturers are hopeful, though trade has been less active recently. Blast furnaces are no longer anticipating deliveries, as they did during the first part of January. Production in Alabama is still about 255,000 tons the month and promises to maintain that rate during the first half of the year. Surplus pig iron on yards, some of it of high silicon content, has been further reduced and demand must be taken care of out of current production. A few inquiries from the outside territory are reported.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$22.00 to $23.00
No. 1 foundry, 2.25 to 2.75 sil.	22.50 to 23.50
Basic	22.00
Charcoal, warm blast	30.00 to 32.00

Rolled Steel.—Both Steel Corporation and independent plants in this district are operating at a high rate. The Tennessee Coal, Iron & Railroad Co. has practically all of its open-hearth furnaces in operation, and the Gulf States Steel Co. has five out of six active. Fabricating plants in this territory and elsewhere continue to take considerable steel. Shipments of fabricated steel from this district are steady. Soft steel bars are still quoted at 2.15c. to 2.25c., base Birmingham, and tank plates and structural shapes at 2.05c. and 2.15c.

Cast Iron Pipe.—Demand for cast iron pipe has increased and production this month is heavier. Shipments up to this time have been equal to the make. Current inquiry indicates that spring buying will be large. Steady shipments into Florida, the far West and into the far Northwest have kept pipe plants busy during the past few months.

Coal and Coke.—Coal operators are making every effort to meet current demands, and with prompt service by railroads, they have found it possible to maintain a large production. Indications point to sustained activity well into the summer, since contracts in hand warrant full operation of many mines through April. Coke production and shipments are steady. New business is in good volume, though not so heavy as heretofore. Quotations on coke continue to range from $5.75 to $6, with 50c. premium asked on small lots for immediate delivery. Fifty additional by-product ovens are planned for this district.

Old Material.—The market is weaker. Steel scrap, in particular, is soft, though quotations have shown little change. Much scrap is moving, but new business is light. Railroad offerings are large. Heavy melting steel is quoted at $14. Dealers are not buying as actively as a short time ago.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	14.00 to 14.50
Railroad wrought	13.00 to 13.50
Steel axles	19.00 to 20.00
Iron axles	18.00 to 19.00
Steel rails	14.00 to 14.50
No. 1 cast	17.00 to 17.50
Tramcar wheels	17.00 to 17.50
Car wheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	8.00 to 8.50
Cast iron borings	8.00 to 8.50
Rails for rolling	17.50 to 18.00

San Francisco

Foreign Competition in Structural Shapes —Pig Iron Quiet

SAN FRANCISCO, Jan. 28 (*By Air Mail*).—Outstanding among the larger bookings during the past week were 1000 tons of structural steel for a concentrator for the United Verde Copper Co., Clarksdale, Ariz., awarded to the McClintic-Marshall Co. and 1000 tons for the Gillespie Dam bridge at Phoenix, placed with the Virginia Bridge & Iron Co.

General business conditions up and down the entire Pacific Coast are excellent and as the year advances, more and more optimism is displayed on all sides. Mill representatives report consumers are showing greater interest and that the volume of business coming to hand is steadily increasing. Less tendency to shade going prices is noted and on the whole the markets may be considered firm.

Pig Iron.—Since the first of the year little of importance has occurred in the pig iron and coke markets. Consumers are well covered on first quarter requirements and are displaying little or no interest in present quotations. The rate of operation is by no means large among the majority of the foundries, and under such conditions consumers are not inclined to anticipate their future requirements. Current sales and inquiries cover small lots for prompt shipment. Prices remain unchanged from those quoted last week.

*Utah basic	$27.00 to $28.00
*Utah foundry, sil. 2.75 to 3.25	27.00 to 28.00
**English foundry, sil. 2.75 to 3.25	25.00 to 26.00
**Belgian foundry, sil. 2.75 to 3.25	24.00
**Dutch foundry, sil. 2.75 to 3.25	24.00
**Indian foundry, sil. 2.75 to 3.25	24.00 to 25.00
**German foundry, sil. 2.75 to 3.25	24.00
**Chinese foundry, sil. 3 to 3.50	25.50

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Plain structural material continues firm at 2.35c., c.i.f. Pacific Coast ports, with some of the smaller lots bringing 2.40c. Importation of foreign shapes into the Los Angeles district is practically negligible, though the price structure in the San Francisco section has suffered to some extent from imports, the foreign material selling for from $7 to $10 and $12 a ton under the domestic prices, depending upon the lengths and sections. Over 2600 tons of steel were awarded for fabrication this week, including 450 tons for a transit shed at Los Angeles and 200 tons for a warehouse in San Francisco for A. M. Castle & Co. Pending business exceeds 10,000 tons. New inquiries call for 5000 tons for the Hunter Dulin Building in San Francisco, 850 tons for the Grant Building in San Francisco, and 290 tons for two schools in Oakland.

Plates.—While close to 7000 tons are up for figures, awards this week were confined to 100 tons for dredge pipe for Rio Vista, Cal., placed with an Oakland fabricator. No action has yet been taken on the 3000-ton penstock for the Feather River Power Co., San Francisco. The city of Portland will open bids on Feb. 3 for a 22,000-ft. 42-in. pipe line, requiring from 1600 to 2000 tons. Prices, so far as can be ascertained, continue firm at 2.30c., c.i.f. Coast ports.

Bars.—Low out-of-stock prices on reinforcing bars continue to be made both in the Los Angeles and San Francisco districts, and in at least two instances 2.40c. was quoted this week. Higher prices, more nearly in line with the base mill price, are expected within the very near future. Awards totaled 300 tons. Pending business is not of heavy proportions at the moment, but much new work is in sight. Eastern mills are firm at 2.35c., c.i.f., on merchant material while the local producers are quoting 2.40c., f.o.b. mill.

Cast Iron Pipe.—The market has been exceptionally quiet for the past two or three weeks and no large awards have been reported. Pending business does not exceedd 1000 tons. Santa Cruz, Cal., opened bids today on 246 tons of pipe. Prices continue around $50 base, delivered.

Steel Pipe.—The Crane Co. was low bidder on 470 tons of 8-in. Matheson joint pipe for Los Angeles. On Jan. 29 Los Angeles will open bids on 750 tons of 8-in. lap weld pipe, and on Feb. 4 Upland, Cal., will take bids on 225 tons of 4 to 12-in. standard pipe. Demand is good.

Warehouse Business.—Jobbers report business so far this month will exceed that of the previous month. All lines are fairly active and with the exception of a $5 a ton advance in cold-rolled shafting in the San Francisco market, prices remain unchanged.

Local warehouse prices, per 100 lb., are as follows: Merchant bars, $3.30 base; merchant bars, ⅜ in. and under, rounds, squares and flats, $3.80 base; soft steel bands, $4.15 base; angles, ⅞ in. and larger x 1½ in. to 2¾ in., incl., $3.30 base; channels and tees, ¾ in. to 2¾ in., incl., $3.90 base; angles, beams and channels, 3 in. and larger, $3.30 base; tees, 3 in. and larger, $3.30 base; universal mill plates, ¼ in. and heavier, stock lengths, $3.30 base; spring steel, ¼ in. and thicker, $6.30 base; wire nails, $3.50 base; cement coated nails, $3 base; No. 10 blue annealed sheets, $3.75; No. 28 galvanized sheets, $6; No. 28 black sheets, $4.75.

Seattle

Lull in New Buying—Large Structural Projects in Prospect

SEATTLE, Jan. 29.—While there is a lull in new buying of iron and steel products, this is believed to be only temporary, since jobbers and consumers desire to work off stocks accumulated in the last two months of last year. The market remains strong, and the feeling is that consumption of steel products will be heavy this year. Building of all kinds is expected to be active, with the possibility that it may surpass last year.

Seattle steel jobbers enjoyed a very good trade from consumers in nearly all steel products in 1925, and expect it to be larger this year. Some large local projects are under way, which, if they go through, will require heavy tonnages of various steel products. Prices are regarded as being low, when high costs are considered.

Pig Iron.—There is little activity in the local pig iron market, the foundry trade having been very quiet for some months past. The Columbia Steel Corporation is quoting about $20 on No. 1 foundry at its Utah furnace. The freight rate to Seattle is now $5 per ton. Practically no foreign iron is coming into the Seattle market.

Structural Steel.—The market on structural shapes is firm at 2.35c., c.i.f. Seattle. While no large jobs are up just now, considerable work is in sight, part of which will no doubt come out during the summer. The Bon Marche, a local department store, has prepared plans for a 12-story steel building to be erected in the uptown shopping district, while the Bedell Co., which has just finished the building of a large department store in Portland, also has plans for a Seattle store, which it is expected will be constructed this year. This company always erects steel buildings, having stores in a number of leading Coast cities. A 22-story office building to be built in Seattle is also contemplated, but this may not develop this year.

Plates.—Local demand for plates is quiet, but prices are reported firm at 2.30c., c.i.f. Seattle. A water line at Tacoma, about 800 tons, and another at Eugene, Ore., 700 tons, all steel riveted pipe, are the only two jobs of moment in sight, but these may not come to a head for some time.

Bars.—Demand for reinforcing steel bars is fairly active. The local maker is quoting about 2.50c., delivered Seattle, and 2.35c. for merchant bars. Very few Eastern bars come into this market, as the freight rates are against them when competing with the local maker.

Sheets.—The sheet market is firm, with considerable tonnage moving in galvanized, but only a fair amount in blue annealed and black. Local sellers say they are getting full Eastern mill prices, which are 2.50c., base Pittsburgh, for blue annealed, 3.35c. for black and 4.60c. for galvanized, the rail and water freight for Seattle delivery being 62c. per 100 lb.

Old Material.—The scrap market is showing very little demand. Foundries are running at only about one-third of capacity, while the local Pacific Coast Steel Co., the leading buyer of steel scrap, has been operating only two of its four open-hearths for some months, and is buying much less than its usual requirements. Steel scrap is held at $10.50, and No. 1 cast iron scrap at $14.50 to $15 per gross ton. In the past, considerable local scrap was shipped to Japan, but there has been practically no buying by that country for a year or more.

Boston

Scrap Unsettled and Pig Iron Quiet—Foundry Coke Prices Unchanged

BOSTON, Feb. 2.—Reports that Buffalo and eastern Pennsylvania irons are being shaded cannot be verified. One Buffalo furnace, heretofore quoting second quarter iron at $21, base furnace, has advanced to $22. Buffalo iron for second quarter delivery is still available at $21 base, however. Otherwise domestic iron prices show no variation, and German foundry, 2.50 to 3.00 per cent silicon, is still available at $20.50 on dock here, duty paid. No material expansion in weekly sales is noted; consequently a real buying movement has yet to come. It now develops that one Massachusetts foundry bought upward of 500 tons of domestic and foreign iron in January, by far the largest individual purchase in that period. The largest open inquiry in the market today is for 880 tons, split up in four grades, for a Holyoke, Mass., plant, shipments to begin at once and to extend to Sept. 30. Another Massachusetts foundry is in the market for 450 tons of No. 2X foundry for second quarter delivery. Most of the other inquiries are for much smaller lots. It has been definitely settled that the Mystic Iron Works, Everett, Mass., will maintain its own selling force. It had been intimated that the company's iron might be sold by brokers, as is the New England Coal & Coke Co.'s coke.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$26.15	to $26.65
East. Penn., sil. 2.25 to 2.75	26.65	to 27.15
Buffalo, sil. 1.75 to 2.25	25.91	to 26.91
Buffalo, sil. 2.25 to 2.75	26.41	to 27.41
Virginia, sil. 1.75 to 2.25		29.92
Virginia, sil. 2.25 to 2.75		30.42
Alabama, sil. 1.75 to 2.25	31.60	to 32.60
Alabama, sil. 2.25 to 2.75	32.10	to 33.10

Shapes and Plates.—Shapes hold steady at 2.265c. to 2.365c. per lb., delivered, with 2.265c. the usual price, while plates apparently are pegged at 2.065c., delivered. Fabricators report little business coming out involving 100 tons of steel or more. There are, however, some large tonnages in the making, which may develop this month. A local hotel project, requiring 1100 tons, has been abandoned.

Cast Iron Pipe.—Boston has awarded 2500 tons of 8-in. to 16-in. pipe to the United States Cast Iron Pipe & Foundry Co. That company's bid was 90c. a ton under the second lowest bidder. Boston also has placed 200 tons of special water works castings with the Davis Foundry Co., Lawrence, Mass., at 5.95c. per lb. The Burr Foundry & Machine Co., Boston, bid the same price. Springfield, Mass., will open bids Feb. 8 on 200 tons of 6-in. and 8-in. New England specification pipe. Northampton, Mass., closed bids Feb. 1 on 150 tons of 6-in., 10-in. and 12-in. pipe. Malden, Mass., has yet to award 250 tons of 6-in. to 12-in. pipe, on which French pipe makers were the lowest bidders. Foundries report private pipe sales as holding up remarkably well, with weekly totals in excess of last year. Prices openly quoted on pipe follow: 4-in., $60.10 a ton, delivered common Boston freight rate points; 6-in. to 16-in., $56.10; 20-in. and larger, $55.10. The usual extra of $5 a ton is asked on Class A and gas pipe.

Coke.—New England by-product coke makers have not taken advantage of the skyrocketing Connellsville market. Both the New England Coal & Coke Co. and the Providence Gas Co. announce that by-product foundry coke on February contract specifications, will be $13 a ton delivered within a $3.10 freight rate zone, the same as in January and December. Foundry coke specifications are somewhat larger than a month ago, although not heavy. The demand for by-product domestic coke, on the other hand, is exceptionally heavy. The New England Coal & Coke Co.'s reserve supply is exhausted, and the company is limiting retail purchases to 1 ton each. According to the Massachusetts Commission on the Necessities of Life, during the period from April 1 to Dec. 31, 1925, some 297,746 tons of coke were made in Massachusetts, which compares with 269,439 between April 1, 1924, and March 31, 1925. The retail price of coke in that State ranged from $10.50 to $14 a ton, delivered, with two gas companies, one in Lowell and the other in Lawrence, charging $15. Imported coke has been eliminated from this market, but a considerable tonnage of imported coal is still available.

Warehouse Business.—The movement of iron and steel out of warehouses continues in excess of last year. Outgo, for the first time in many months, is greater than receipts; consequently stocks are more broken. Considerable competition is being encountered in imported structural steel, especially German material, which is rolled to our standard specifications. Other foreign mill products, however, are not much of a market factor here. Warehouse prices on iron and steel are steady and unchanged.

Warehouse prices on finished material follow:

Steel.—Soft bars, $3.265 per 100 lb.; flats, $4.15; plain concrete bars, $3.265; deformed concrete bars, $3.265 to $3.54; angles under 3-in., $3.265; tees and zees, $3.415; structurals, angles and beams, $3.365; plates, ¼-in. and heavier, $3.365; ⅜-in., $3.565; tire steel, $4.50 to $4.75; open-hearth spring steel, $5 to $10; crucible spring steel, $12; bands, $4.015 to $5; hoop steel, $5.50 to $6; cold rolled, rounds and hexagons, $3.95; squares and flats, $4.45; toe calk steel, $6.

Iron.—Refined bars, $3.265 per 100 lb.; best refined, $4.60; Wayne, $5.50; Norway, rounds, $6.60; squares and flats, $7.10.

Old Material.—The old material situation is still very much unsettled. Prices quoted by dealers continue to take an unusually wide range, and depend to a considerable extent on tonnages involved. For instance, the best some can do on car lots of such material as forged scrap and skeleton is $9.10 a ton on cars, but for large tonnages they can do very much better, usually $10. Average prices quoted here, however, are not very much different from what they were a week ago. Few are willing to sell at prevailing prices; consequently little actual business is transacted. Some independent eastern Pennsylvania steel mills are showing greater interest in scrap and a few have taken unimportant tonnages on offers, but dealers as a rule are not anxious to ship owing to losses recently suffered on rejected shipments there. Of the many kinds of scrap, shafting appears the steadiest. Portland, Me., Connecticut and eastern Pennsylvania consumers are in the market for such material, and prices are pegged at $17.50 to $18 on cars. The supply is limited, however.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	$20.00 to $20.50
No. 1 machinery cast	19.50 to 20.00
No. 2 machinery cast	15.50 to 16.50
Stove plate	14.00 to 14.50
Railroad malleable	19.50 to 20.00

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$11.50 to $12.50
No. 1 railroad wrought	13.25 to 13.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1 in. in diameter, over 2 ft. long)	11.50 to 11.75
Machine shop turnings	9.00 to 9.50
Cast iron borings, chemical	11.50 to 11.75
Cast iron borings, rolling mill	9.00 to 9.50
Blast furnace borings and turnings	9.00 to 9.50
Forged scrap	9.00 to 10.00
Bundled skeleton, long	9.00 to 10.00
Forged flashings	9.00 to 10.00
Bundled cotton ties, long	8.50 to 9.00
Bundled cotton ties, short	10.00 to 10.25
Shafting	17.50 to 18.50
Street car axles	17.50 to 18.00
Rails for rerolling	13.25 to 13.50
Scrap rails	11.50 to 12.50

Toronto

Canadian Pig Iron Output in 1925 Declined—Gain in Steel Production

TORONTO, ONT., Feb. 2.—The production of pig iron in Canada for the month of December amounted to 54,889 gross tons, which, while well over the monthly average for the year of 48,000 tons, was about 20 per cent under the total of 68,535 tons produced in November, according to a report just issued by the Dominion Bureau of Statistics. For the 12 months ended with December the output of pig iron in Canada was 570,397 gross tons, a slight recession from the 593,024 tons made during the year 1924, which, in turn, marked a decrease of 33 per cent from the 880,018 tons produced during the year 1923. In 1925 the output produced for the further use of makers, mostly basic pig iron, represented about 74 per cent of the total, as against 61 per cent in 1924. Taking the population of Canada at 9,364,200 persons in 1925, the per capita production of pig iron was 136 lb., as against 144 lb. in the preceding year, 216 lb. in 1923.

In the year under review Ontario produced 370,000 tons of pig iron, or 65 per cent of the total Canadian output, as against 70 per cent of the total in 1924. Nova Scotia accounted for the balance in each year.

For the whole of Canada, furnace charges during the year consisted of 6098 gross tons of Canadian ore, 1,023,486 tons of imported ore, 636,594 net tons of coke, and 322,882 net tons of limestone. Five furnaces, having a capacity of 1825 tons per day, or 35 per cent of the total of all blast furnaces in Canada, were in blast on Dec. 31, at the following points: British Empire Steel Corporation, Sydney, N. S., two; Steel Co. of Canada, Ltd., Hamilton, Ont., two, and Algoma Steel Corporation, Sault Ste. Marie, Ont., one.

In December the production of ferroalloys was 3008 tons, marking a slight increase over the 2094 tons made in November. The total output for the year was 25,709 tons, as against 26,400 tons in 1924 and 28,961 tons in 1923.

Reflecting the lower output of pig iron, the December production of steel ingots and castings at 62,353 tons marked a drop of 15 per cent from the 73,205 tons made in the preceding month, and was slightly lower than the average monthly output of 63,000 tons. The decline was mostly in steel ingots.

For the entire year ended with December, however, 733,855 tons of ingots and 18,440 tons of castings were produced, as compared with 625,175 tons of ingots and 25,515 tons of castings in 1924.

A review of price trend during the year shows that iron and its products fluctuated within narrow limits, but at considerably lower levels than in 1924. Based on 1913 prices as 100, the index of the Dominion Bureau of Statistics was 158.4 in January and 147.3 in December, a decline of about 11 points. February at 158.5 marked the high point for the year, and November at 147.1 the low point. In 1924 the prices ranged from 168.5 in January to 154.8 in November.

Youngstown

Mills Shut Down Rather Than Cut Prices —Blast Furnaces Banked

YOUNGSTOWN, Feb. 2.—Conflict between producers and buyers with respect to prices is responsible for some curtailment this week in production by Mahoning and Shenango Valley steel makers. The Waddell Steel Co. has suspended operations in its seven-mill sheet plant at Niles for the week, partly for business reasons and partly for repairs. In some instances mills are shutting down rather than accept tonnages at prices which they say will result in loss. In the face of well-maintained sheet bar prices to contract buyers and insistence on reduced sheet prices on the part of buyers, non-integrated rollers obliged to purchase their

semi-finished steel on the open market, are confronted with a serious condition.

Wire Products and Pipe.—In wire products and standard merchant pipe, improved inquiry reflects anticipated spring requirements. Much of the current demand for light tubes is coming from jobbers.

Pig Iron.—Moderate first quarter inquiry for merchant pig iron is developing, but under influence of high coke prices, blast furnace operations have been checked. Owing to insufficiency of its contract coke supplies, the Struthers Furnace Co., Struthers, Ohio, last week banked its stack for several days. It was started again upon the accumulation of coke shipments and will operate without interruption until at least Feb. 20. Considerable difficulty was encountered by the receiver in efforts to cover on additional coke supplies at prices which would permit profitable operation of the furnace at the current iron market. The Youngstown Sheet & Tube Co. has banked a furnace in its Iroquois group at South Chicago, because of the coke situation. The relighting of a stack in the Ohio works group of the Carnegie Steel Co., which has been idle for relining and rebuilding, has been deferred, while plans for the resumption of operations at the Mattie blast furnace, Girard, of the A. M. Byers Co., Pittsburgh, have likewise been held in abeyance.

Bars and Tin Plate.—The current lull in specifications and new business is more sharply felt in sheets, plates and heavy steel pipe than in other rolled products. The production of merchant bars, hot-rolled strips and tin plate in this district shows little recession.

Steel Works Operations.—Steel ingot output has dropped to an 80 per cent average, from the 90 per cent rate maintained until recently. Of 53 independent open-hearth furnaces, 40 were scheduled this week, against 47 last December. Bessemer steel plant operations have also been curtailed to 75 per cent from an 85 per cent rate. The Youngstown Sheet & Tube Co. advises that production generally has been reduced by it from 90 to 85 per cent, while the Republic Iron & Steel Co. is down to 80 per cent. The Sharon Steel Hoop Co. and the Trumbull Steel Co. are operating close to normal in ingot and hot mill departments.

Sheets.—Of 127 sheet mills in the Mahoning Valley, 107 were scheduled to start Sunday night or Monday morning, as compared with 114 active the preceding week and a high of 121 in December, 1925. The Newton Steel Co., catering to the automobile and metal furniture trades, continues to operate all of its 20 sheet mill at Newton Falls, Trumbull County.

Plates and Pipe.—Tube mill schedules show 11 of 18 units under power, representing a 65 per cent production rate; plate mills are running at only 35 per cent of capacity.

Buffalo

Scrap Declines — Pig Iron Dull — Little Interest in Finished Steel

BUFFALO, Feb. 2.—Inquiry amounts to not more than 5000 tons. One lot is for 1000 tons of malleable and foundry for the Worthington Pump & Machinery Corporation. The General Electric Co. and American Locomotive Co. inquiries, mentioned last week, are said to have been placed. The local furnace price of $21 has not been broken, so far as can be learned. The two furnace interests which have been quoting $22 for No. 2 plain foundry are adhering to that price, but are getting no business. One of these producers has 3000 to 4000 tons of high manganese iron which it is selling at $21, base. All prices quoted for second quarter business are $21. Silicon differentials are still adhered to.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	$21.00 to $22.00
No. 2X foundry, sil. 2.25 to 2.75	21.50 to 22.50
No. 1 foundry, sil. 2.75 to 3.25	22.50 to 23.50
Malleable, sil. up to 2.25	21.00 to 22.00
Basic	20.50 to 21.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Reinforcing bar interests are figuring on 400 to 500 tons. Part of this is 125 tons for the Koplon Building, which will also take 300 to 350 tons of structural steel. Fabricators are interested in a sizable letting for transmission towers by the Niagara, Lockport & Ontario Power Co., which may run to 4500 tons. Bars are being quoted at 2.265c., delivered Buffalo; shapes, 2.165c. to 2.265c., and plates, 2.065c. The plate market is dull. Wire business is reported fair, with mills sold for six to eight weeks on some grades and two to three on others. Wire makers regard the situation as promising. Mill operations are around 90 per cent of capacity.

Warehouse prices are being quoted as follows: Steel bars, 3.30c. per lb.; steel shapes, 3.40c.; steel plates, 3.40c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized, 5.75c.; Cold-rolled shapes, 4.45c.; cold-rolled rounds, 3.95c.; wire nails, 3.90c.; black wire, 3.90c.

Old Material.—The market, after steadily declining for three weeks, is weak, with scarcely any buying. One mill has been offering $17 for heavy melting steel in small lots, but it is doubtful if it would pay that much today. The bottom has dropped out of almost every commodity and the mills are content to use up stock piles and await developments. Mill operations continue almost at capacity, but it is said that orders are not as large as they were. This is apparently dictating the mills' decision not to add to scrap stocks. Production of scrap is dropping off, and the zero weather of last week has interfered with yard operations. Sales of shoveling turnings have been light.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	$16.50 to $17.50
Low phosphorus	19.50 to 20.00
No. 1 railroad wrought	15.00 to 16.00
Car wheels	17.00 to 17.50
Machine shop turnings	13.00 to 13.50
Mixed borings and turnings	14.00 to 14.50
Cast iron borings	13.50 to 14.00
No. 1 busheling	16.00 to 17.00
Stove plate	15.00
Grate bars	13.50 to 14.00
Hand-bundled sheets	12.00 to 12.50
Hydraulic compressed	16.00 to 17.00
No. 1 machinery cast	17.00 to 17.50
Railroad malleable	19.00 to 19.50
No. 1 cast scrap	17.50 to 18.00
Iron axles	26.00 to 27.00
Steel axles	18.50 to 19.00

St. Louis

Weaker Tone in Pig Iron—General Decline in Scrap

ST. LOUIS, Feb. 2.—With the general run of melters well supplied with pig iron for first quarter and blast furnaces unwilling to sell further ahead than March 31, the market is quiet. The melt, however, is holding up to its recent high levels, and shipments are large. Stove works report a volume of orders for spring delivery well in excess of bookings at the same period last year or in 1923. Jobbing foundries complain of the backwardness of new business. Prices, while nominally unchanged, are somewhat uncertain. No. 2 Southern foundry is quoted at $23, Birmingham, but one Tennessee producer is offering second quarter iron at $22, base Birmingham. Chicago iron is quotably unchanged at $23, but doubtless as low as $22, base Chicago, could be done. The leading local producer is out of the market for the first quarter, but quotes nominally $23.50 to $24, f.o.b. Granite City.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$25.66
Northern malleable, sil. 1.75 to 2.25	25.66
Basic	25.66
Southern fdy., sil. 1.75 to 2.25	$26.42 to 27.92
Granite City iron, sil. 1.75 to 2.25	24.31 to 24.81

Finished Iron and Steel.—The general demand for iron and steel continues at better than seasonal levels. While buying is mainly in small quantities, the aggregate tonnage makes a formidable showing. The demand for iron and steel out of stock has undergone a steady expansion since the second week in January.

Warehouse men report that the most active section of the trade is the general manufacturing outlet. Building materials are moving well, particularly reinforcing concrete bars and shapes. Prices were unchanged, with the exception of a slightly easier trend on wire nails and some other wire products.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.25c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, cold rolled, one pass, 4.60c.; galvanized sheets, No. 28, 5.70c.; black corrugated sheets, 4.65c.; galvanized, 5.75c.; cold-rolled rounds, shafting and screw stock, 3.75c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, ⅝-in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 and 5 per cent; lag screws, 55½ per cent; hot-pressed nuts, square, $3.25 off list; hexagon, blank or tapped, $3.75 off list.

Coke.—The chief feature in the coke situation is the strong call for domestic sizes. By-product manufacturers are operating at capacity, and report shipments in excess of current output. Specifications against old contracts are large, especially from the North. The continued heavy melt at foundries is reflected in a brisk demand for foundry coke, but thus far no scarcity has appeared. Prices continue steady on all classes of fuel.

Old Material.—Lower prices affecting virtually all grades feature the scrap market. Mills and foundries complain of lack of new business, and are disposed to postpone purchasing until something more definite is known regarding second quarter prospects. Buying is confined to small tonnages for fill-in purposes. Steel specialties are plentiful and weak, having been marked down 50c. to $1 per ton. Rails are lower and the same is true of malleable grades. Foundry grades were relatively firmer than other grades. Railroad offerings continue on a large scale, lists before the trade including: Chicago, Burlington & Quincy, 4200 tons; Pennsylvania, 35,000 tons; Big Four, 2700 tons, including 1000 tons of rails for rolling; Missouri Pacific, 118 cars, and St. Louis-San Francisco, 500 tons of old car wheels.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$13.50 to $14.00
Rails for rolling	16.75 to 17.25
Steel rails less than 3 ft.	17.50 to 18.00
Relaying rails, 60 lb. and under	24.00 to 25.00
Relaying rails, 70 lb. and over	30.00 to 31.00
Cast iron car wheels	17.25 to 17.75
Heavy melting steel	14.75 to 15.25
Heavy shoveling steel	14.75 to 15.25
Frogs, switches and guards cut apart	16.50 to 17.00
Railroad springs	17.50 to 18.00
Heavy axles and tire turnings	11.75 to 12.75
No. 1 locomotive tires	16.50 to 17.00
Per Net Ton	
Steel angle bars	14.00 to 15.00
Steel car axles	17.25 to 17.75
Iron car axles	23.00 to 23.50
Wrought iron bars and transoms	19.00 to 19.50
No. 1 railroad wrought	12.25 to 12.75
No. 2 railroad wrought	13.00 to 13.50
Cast iron borings	10.75 to 11.25
No. 1 busheling	11.50 to 12.00
No. 1 railroad cast	14.75 to 15.25
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	14.00 to 14.50
Machine shop turnings	7.00 to 7.50
Bundled sheets	8.00 to 8.50

Detroit Scrap Market Weak Without Price Changes

DETROIT, Feb. 2.—The market on old material is still showing soft tendencies but no further break in prices has been registered. Automobile production shows some increase over January. Old orders are sufficient to cover scrap releases for the month.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$14.25 to $14.75
Borings and short turnings	10.75 to 11.25
Long turnings	10.25 to 10.75
No. 1 machinery cast	17.00 to 18.00
Automobile cast	23.00 to 24.00
Hydraulic compressed	13.50 to 14.00
Stove plate	13.50 to 14.50
No. 1 busheling	13.25 to 13.75
Sheet clippings	8.75 to 9.25
Flashings	11.25 to 11.75

Cincinnati

Pig Iron Weaker on Resale Offerings—New Business in Steel Light

CINCINNATI, Feb. 2.—Slight interest in pig iron has been manifested by consumers, and bookings for the week totaled only 5000 tons. The first signs of a break in the price of Southern Ohio Foundry iron have appeared. Resale iron from the Ironton district has been offered by at least one broker at $20.50, base furnace, which is a 50c. decline from the quotation which has prevailed during the past two months. Ironton producers are not attempting to meet this competition for the moment and are refusing to go under $21. Tennessee iron can be secured for the second quarter at $22, base Birmingham, but sales have been negligible. Furnaces in Alabama are showing no desire to book second quarter iron and are remaining out of the market. Meanwhile quotations nominally are $22, base Birmingham. Sales of malleable iron are limited to small tonnages at $21, base Ironton. A Dayton, Ohio, melter has taken 1000 tons of malleable iron for second quarter delivery, and a central Ohio consumer has bought 500 tons of Northern foundry. Few general inquiries have come out in the past week. The Worthington Pump & Machinery Corporation has revised its previous inquiry and now expects to purchase 1350 tons of foundry iron for delivery to its local plant during the first three quarters. Shipments of iron from Ironton furnaces in January attained a satisfactory volume. A local dealer has sold 1000 tons of spiegeleisen in scattered lots, ranging from 50 to 200 tons.

Based on freight rates of $3.69 from Birmingham and $2.27 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$25.69
Alabama fdy., sil. 2.25 to 2.75	26.19
Tennessee fdy., sil. 1.75 to 2.25	25.69
Southern Ohio silvery, 8 per cent	32.77
So. Ohio fdy., sil. 1.75 to 2.25	$22.77 to 23.27
Southern Ohio, malleable (nominal)	23.27

Finished Material.—In both specifications and orders January fell considerably short of December. The feeling that prices will not go any higher has been an influential factor in leading purchasers to buy sparingly. The softening of shape and plate prices has been responsible for much "shopping around" by fabricators. Bar tonnage in the past week has shown a moderate increase, with quotations strong at 2c., base Pittsburgh. Several mills seeking plate orders at 1.85c., base Pittsburgh. Prices of shapes suffered a setback because of the decision of one or two producers to accept business at 1.90c., base Pittsburgh. Sales of sheets have been maintained at a fair level, although it is necessary to overcome a noticeable apathy on the part of most consumers. Galvanized sheets are in active demand, and buyers are paying 4.60c., base Pittsburgh, without questioning that price. Orders for blue annealed sheets have been well sustained, with 2.50c., base Pittsburgh, as the prevailing quotation. Automobile makers are unwilling to pay 4.50c., base Pittsburgh, for automobile body sheets and have postponed action in an effort to force mills to make concessions. Black sheet sales have been about normal at 3.35c., base Pittsburgh. The movement of wire goods has been fairly good, although mills complain of the lack of buying by jobbers, who apparently are well stocked to meet present requirements. Common wire nails are quoted at $2.65 per keg, Pittsburgh or Ironton, and plain wire at $2.50 per 100 lb., Pittsburgh or Ironton. Fabricators have a considerable number of small lettings, which are sufficient to keep their shops running at a normal rate. Severe competition has compelled fabricators to accept work at extremely low prices. Indications point to an expansion of structural steel business in the early spring.

Reinforcing Bars.—Aside from a few scattered inquiries for lots ranging from 25 to 100 tons, the market is devoid of activity. Several attractive projects which are now in the formative stage are expected to materialize within the next month. New billet bars are

steady at 2c., Cleveland, and rail steel bars at 1.90c., mill.

Warehouse Business.—While January sales exceeded those of December by a small margin, the increase was not so great as jobbers had anticipated. A decided improvement in orders for plates, tubing and cold-rolled products has offset the comparative inactivity of structural steel. Prices are firm and unchanged.

Cincinnati jobbers quote: Iron and steel bars, 3.30c. per lb.; reinforcing bars, 3.30c.; hoops, 4c. to 4.25c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; Cold-rolled rounds and hexagons, 3.85c.; squares, 4.35c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, 4.10c. to 4.30c.; No. 28 galvanized sheets, 5.25c. to 5.40c.; No. 9 annealed wire, $3 per 100 lb.; common wire nails, $2.95 per keg base; cement coated nails, $2.25 per keg; chain, $7.55 per 100 lb. base; large round head rivets, $3.75 base; small rivets, 65 per cent off list. Boiler tubes, prices net per 100 ft.; lap-welded steel tubes, 2-in., $18; 4-in., $38; seamless, 2-in., $19; 4-in., $39.

Coke.—Attention continues to center on the domestic market. Approximately 4000 tons of beehive furnace coke from the New River and Wise County ovens have been sold for prompt shipment for domestic purposes. Dealers are experiencing extreme difficulty in obtaining coke, because producers are able to command such high prices for their fuel in Eastern markets. New River furnace coke has advanced to $5.75 to $6, ovens, and at least one order has been entered at $6.50, ovens. Wise County furnace grades range from $5.75 to $6, ovens, but only small tonnages are available for immediate delivery. Consumers are besieging dealers with requests for quick shipments of domestic coke. Inability to secure cars has hampered Alabama producers in supplying the demand from this territory. Shipments of by-product domestic coke in January were 15 per cent ahead of those in December, but by-product foundry specifications showed a small decrease. By-product domestic coke is quoted at $8.64, delivered Cincinnati, on No. 2 nut, and $9.14, delivered Cincinnati, on egg and walnut grades.

Based on freight rates of $2.14 from Ashland, Ky., $3.53 from Connellsville, and $2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, $12.53; Wise County foundry, $9.09; New River foundry, $9.59 to $10.59; by-product foundry, $10.64.

Old Material.—In the absence of consumer buying, prices have dropped off sharply and heavy melting steel is now selling at $13 to $13.50, a decrease of $1 from last week's quotation. Other items have weakened from 50c. to $1. Dealers believe that the market will go even lower before a buying movement sets in. The Big Four has a list totaling 3000 tons, which closes today.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	$13.00 to $13.50
Scrap rails for melting	13.50 to 14.00
Short rails	18.00 to 18.50
Relaying rails	27.00 to 27.50
Rails for rolling	14.50 to 15.00
Old car wheels	13.00 to 13.50
No. 1 locomotive tires	16.50 to 17.00
Railroad malleable	15.50 to 16.00
Agricultural malleable	14.50 to 15.00
Loose sheet clippings	9.00 to 9.50
Champion bundled sheets	10.50 to 11.00
Per Net Ton	
Cast iron borings	8.50 to 9.00
Machine shop turnings	7.50 to 8.00
No. 1 machinery cast	19.50 to 20.00
No. 1 railroad cast	15.00 to 15.50
Iron axles	22.50 to 23.00
No. 1 railroad wrought	10.00 to 10.50
Pipes and flues	8.50 to 9.00
No. 1 busheling	9.50 to 10.00
Mixed busheling	8.50 to 9.00
Burnt cast	8.50 to 9.00
Stove plate	10.00 to 10.50
Brake shoes	10.00 to 10.50

A study of the heat treatment of oxidized ores, followed by concentration, is being conducted at the Salt Lake City experiment station of the United States Bureau of Mines. The purpose is to develop a process for the separation of lead and zinc in oxidized ores that are not amenable to any other method of treatment. Several tests have been made, using this process, and the results were encouraging.

New York

Pig Iron Buyers Hesitate—Steel Demand Still Sluggish

NEW YORK, Feb. 2.—Hesitancy still characterizes the attitude of melters toward their second quarter pig iron requirements, and with few exceptions current orders and inquiries are confined to prompt and first quarter needs. While the coke situation is still regarded as an uncertain factor which may result in increased blast furnace costs, the pressure of foreign iron for a market is unabated. Moreover, domestic furnaces are beginning to become perturbed because of the lack of forward business and are taking a more active interest in getting fresh tonnage on their books. Sentimentally the market is weaker, although reports of concessions in prices lack confirmation. In the face of the general reluctance to buy beyond this quarter, two good-sized inquiries for extended delivery are before the trade. The Worthington Pump & Machinery Corporation has revised its previous inquiry and is now in the market for a total of 3100 tons for Holyoke, Mass., Harrison, N. J., Buffalo, and Elmwood Place, Ohio, with deliveries extending through the second and third quarters. A Massachusetts melter wants 450 tons of No. 2X foundry for second quarter. Sales in this district during the past week are estimated at 5000 tons. The General Electric Co. has closed against its inquiry for 1500 tons of foundry for Elmira, N. Y., and 300 tons for Bayway, N. J. The Crane Co. has bought an additional 500 tons of German foundry for its Bridgeport, Conn., plant. The Richmond Radiator Co. has divided 200 tons of foundry for Norwich, Conn., between domestic and foreign makers. The Ramapo Foundry & Wheel Works, Ramapo, N. Y., has closed for 500 tons of malleable. Foster, Merriam & Co., Meriden, Conn., is in the market for 300 to 500 tons of foundry for the current quarter. Sales of 500 tons of Virginia iron in this territory were made at $24, base furnace.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East. Pa. No. 2 fdy., sil. 1.75 to 2.25	$25.02 to $25.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	25.52 to 26.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	26.02 to 26.52
Buffalo fdy., sil. 1.75 to 2.25	25.91 to 26.91
No. 2 Virginia fdy., sil. 1.75 to 2.25	29.54

Ferroalloys.—About one-third of the inquiry for 900 tons of ferromanganese from a Western consumer, noted last week, has been placed. The company also took some 50 per cent ferrosilicon. The remainder of the order is believed not yet to have been negotiated. Outside of this the market is devoid of inquiries except for carload and small lots. In spiegeleisen some business is being done for importation, but the tonnages being placed are not large. Sales have been made of close to 500 tons the past week, together with carload and small lots. Specifications on contract for 50 per cent ferrosilicon and standard ferrochromium continue satisfactory.

Warehouse Business.—Only a moderate demand is reported by most jobbers, purchases being numerous but tonnages involved small. Prices are generally unchanged except for some slight weakness in the nonferrous metals. Zinc sheets continue strong despite the condition of the spelter market. Black and galvanized sheets are still obtainable without difficulty at 4.35c. and 5.35c. per lb., base, respectively. Prices on page 398. We quote boiler tubes per 100 ft., as follows:

Lap welded steel tubes, 2-in., $17.33; seamless steel, 2-in., $20.24; charcoal iron, 2-in., $25; 4-in., $67.

Finished Iron and Steel.—Tonnage business which piles up backlogs for the steel mills is lacking. Structural steel construction and railroad buying of cars and locomotives are lagging, and though prospects are

promising, no great volume of buying is under way. Less than the usual number of structural projects requiring large tonnage were placed last month, and plate tonnage likewise fell off. A great many building projects for spring and summer are being shaped up, however, and the mills are confident that more work will come into the market soon. One of the largest pending car purchases, that of the Pacific Fruit Express for about 5000 refrigerator cars, was to have been placed Jan. 16, but is still held up, but may be released this week. Upward of 11,000 freight cars were ordered in January as compared with 9129 in January, 1925, but last year's car purchases were much below expectations and this year has been counted on to produce a greater volume of equipment buying. Most of the orders received by local offices of steel companies during January were in the form of specifications against contracts. One office estimates that 90 per cent of its January tonnage in this territory was contract business. The new business which mills will need if they are to continue to maintain rolling schedules for several weeks ahead is coming in very slowly. There was evidence today, however, that some of the automobile companies are releasing orders to parts makers, as steel companies received hurry-up orders for bars from drop forging makers. In a few instances drop forgers catering to the automobile trade asked for shipments much earlier than the delivery schedules of the mills would permit. The price situation is virtually unchanged, being firmer if anything in some lines. Cutting of 5c. a keg on wire nails is said to have disappeared, and there is less heard of concessions on sheets. Plate sales are usually in small lots which command 1.80c., Pittsburgh, from Eastern mills, but concessions of $1 a ton are heard of on attractive orders carrying prompt specifications. Structural shapes seem to be fairly firm at 1.90c., Pittsburgh, while bars remain at 2c., Pittsburgh.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c. per lb.; plates, 2.09c. to 2.14c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.24c.

Cast Iron Pipe.—A moderate volume of buying continues, with municipal inquiries beginning to appear in greater number. Quincy and Medford, Mass., will each open bids this week on small lots of a few hundred tons of water pipe. Portland, Me., closed last week on 400 to 500 tons of water pipe with the Warren Foundry & Pipe Co. The Nassau & Suffolk Lighting Co., Hempstead, L. I., N. Y., has purchased about 800 tons of gas pipe from the Pont-a-Mousson works. Prices continue unchanged and are showing more firmness than for some time with the French maker offering only moderate competition. Soil pipe continues quiet with discounts unchanged. The beginning of spring buying is not expected for several weeks.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $50.60 to $52.60; 4-in. and 5-in., $55.60 to $57.60; 3-in., $65.60 to $67.60; with $5 additional for Class A and gas pipe. Discounts both of Northern and of Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 42½ to 43¼ per cent off list; heavy, 52½ to 53¼ per cent off list.

Coke.—Prices of both foundyr and furnace coke are rather irregular. While $10 to $10.50 per ton is quotable on both grades, large foundry consumers could probably do better than this on occasion. Domestic sizes continue high at about $13 per ton. The car shortage in the Connellsville district continues and a railroad accident at Altoona, Pa., has added to the congestion. By-product continues at $11.52 per ton, delivered Newark or Jersey City, N. J., but practically no tonnage is available from the local producer except on contracts. Delays in shipping on contracts are being experienced, it is reported, as a result of tonnages diverted for domestic consumption by the local fuel administrator.

Old Material.—Practically all grades of scrap declined still further last week in a market controlled almost exclusively by broker buying. Although a good volume of material is apparently coming out at the lower level of prices, brokers report increasing difficulty in securing tonnages. No. 1 heavy melting steel is being purchased at $15.50 to $16 per ton, delivered eastern Pennsylvania consumers, with as high as $16.25 reported being paid in some instances. Borings and turnings are being shipped to eastern Pennsylvania consumers at $14 per ton, delivered, and $15.50 and occasionally $16 per ton is being paid on specification pipe. Stove plate for foundries is unchanged but $13.50 to $14 per ton delivered is about the current market for steel mills, so that a buying price of $10 to $10.50 per ton, New York, is generally quoted by brokers.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	$11.00 to $11.50
Heavy melting steel (railroad or equivalent)	12.50 to 13.00
Rails for rolling	13.50 to 14.00
Relaying rails, nominal	23.00 to 24.00
Steel car axles	19.50 to 20.00
Iron car axles	23.50 to 24.00
No. 1 railroad wrought	14.00 to 14.50
Forge fire	10.50 to 11.00
No. 1 yard wrought, long	13.00 to 13.50
Cast borings (steel mill)	10.00 to 10.25
Cast borings (chemical)	14.00 to 14.50
Machine shop turnings	10.00 to 10.25
Mixed borings and turnings	10.00 to 11.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	11.75 to 12.25
Stove plate (steel mill)	10.00 to 10.50
Stove plate (foundry)	11.25 to 11.75
Locomotive grate bars	11.50 to 12.00
Malleable cast (railroad)	16.50 to 17.50
Cast iron car wheels	14.00 to 14.50
No. 1 heavy breakable cast	13.25 to 14.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$17.50 to $18.00
No. 1 heavy cast (columns, building material, etc.), cupola size	16.00 to 16.50
No. 2 cast (radiators, cast boilers, etc.)	15.00 to 15.50

Cleveland

Sheet Prices Give Ground—Large Structural Projects—Two Stacks Blown Out

CLEVELAND, Feb. 2.—The demand for finished steel increased somewhat during the week, owing to larger orders from the automobile industry, but bookings are light, being still confined almost entirely to specifications on contracts. However, leading manufacturers of steel bars, plates and structural material report that orders are about keeping up to shipments and that there is little change in deliveries. Consumers are carrying small stocks and are crowding the mills for deliveries, but with a lack of new business the market does not show the strength that has prevailed in recent weeks. A consumer in this territory has placed 500 tons of steel bars of forging quality at 1.90c., Pittsburgh. These also carry an extra for small size. However, the price of 2c., base Pittsburgh, appears to be holding firmly on common carbon steel bars. The drive of the Detroit automobile manufacturers for lower sheet prices has been successful. The concession of $2 a ton on automobile body sheets reported last week has become fairly common and black and galvanized sheets are weaker. The plate market is meeting more price resistance from buyers than recently and some mills that have been holding to 1.90c., base Pittsburgh, are taking orders at 1.85c., and some business is going at 1.80c. On structural material 1.90c., base Pittsburgh, has become the more common price. Building inquiry shows improvement. Three fresh projects aggregate 6000 tons, and an inquiry is expected shortly for 20,000 tons, or more, for railroad bridges in connection with the Cleveland Union Depot. This is in addition to the work now pending, requiring 20,000 tons, for which bids were taken Feb. 1. There is considerable demand for construction jobs taking less than 100 tons each. Ohio fabricators are figuring on a 42-in. pipe line for Portland, Ore., which will require 2500 tons of plates.

Pig Iron.—The most encouraging feature in the market is that shipments continue heavy and were about as good in January as in December. The automotive industry is taking iron in large quantities and there is a good demand from the stove, furnace and implement manufacturers. However, consumers are well covered for the first quarter, and few are showing any interest in the second quarter. Sales by Cleveland interests during the week aggregated 15,000 tons, largely for shipment in the first quarter. An automobile parts manufacturer bought 1200 tons of foundry iron for the second quarter. One producer has inquiries pending for

10,000 tons, including one from Erie, Pa., and one from an Indiana melter, each for 1000 tons, and another for 1500 tons. There is no change in the price situation. Cleveland furnaces quote foundry iron at $22 for local delivery and $21 for outside shipment. The Valley price remains at $20.50, furnace, and prices in western Ohio, Michigan and Indiana at $23, furnace. Lake furnaces on the $23 base are losing considerable business in central Ohio, which is going to southern Ohio furnaces having lower delivered prices. A Chicago district consumer purchased 500 tons of low phosphorus iron from a Valley producer at $27.50, furnace, during the week. The McKinney Steel Co. has blown out two of its four Cleveland furnaces, making three furnaces in this city that went out during January.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$20.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	$22.26 to 22.50
Southern fdy., sil. 1.75 to 2.25	28.01
Malleable	22.26 to 22.50
Ohio silvery, 8 per cent	33.52
Standard low phos., Valley furnace	27.50 to 28.00

Iron Ore.—Prices on Lake Superior ore for 1926 are being discussed by producers and consumers, and some of the steel companies that are buyers seem inclined to favor a slight advance. The opinion is rather general that if any advance is made, it will not be over 25c. a ton, and some of the producers evidently will be satisfied with that. Some reservations have been made on term contracts, but these are rather slow in coming out. The consumption of Lake Superior ore during 1925 was 54,767,112 tons, or somewhat less than the total amount shipped. Estimating the all-rail movement at 1,450,000 tons, the total shipments were 55,531,293 tons. Furnaces in the Central district, according to figures tabulated by the Lake Superior Iron Ore Association, last year consumed 29,083,982 tons of Lake ore. Eastern furnaces consumed 1,265,195 tons, Lake front furnaces 23,041,715 tons, and all-rail furnaces 1,376,220 tons.

Semi-Finished Steel.—The present supply is liberal and there is an absence of new inquiry. Consumers are securing shipments at regular market quotations.

Sheets.—Following some irregularity, there has been a further slipping in prices, except on blue annealed sheets, to the levels that prevailed before the November advances. Concessions of $2 a ton to 4.40c., Pittsburgh, on automobile body sheets, to Detroit automobile companies have become general, some of the mills that have been trying to hold to the higher prices having met the cut. Black sheets have settled down to 3.25c. to 3.35c., base Pittsburgh, although a price of 3.15c. is reported in Detroit. Galvanized sheets can be bought at 4.50c., a $2 a ton concession. Blue annealed sheets appear to be holding firmly at 2.50c., except possibly on the heavier gages which are finding competition from the light plate mills. Specifications are rather light, not being equal to shipments and some mills are in need of orders.

Strip Steel.—Specifications for both hot and cold-rolled strip steel have increased, but some of the mills have caught up on deliveries and need orders. No concessions from regular prices are reported.

Warehouse Business.—Business with jobbers is very good, showing a gain over December, which seems due to low stocks and the hand-to-mouth buying policy of some consumers. Prices are unchanged.

Jobbers quote steel bars, 3.10c. per lb.; plates and structural shapes, 3.20c.; No. 28 black sheets, 4.10c.; No. 28 galvanized sheets, 5.25c.; No. 10 blue annealed sheets, 3.25c.; cold-rolled rounds and hexagons, 3.90c.; flats and squares, 4.40c.; hoops and bands, 3.85c.; No. 9 annealed wire, $3 per 100 lb.; No. 9 galvanized wire, $3.45 per 100 lb.; common wire nails, $3 base per keg.

Reinforcing Bars.—The Walsh Construction Co. is low bidder for a sewage disposal plant in Akron, Ohio, requiring 2000 tons and an inquiry is out for the same amount in connection with the Cleveland Union Depot project. Rail steel bars are unchanged at 1.80c. to 1.90c., mill.

Bolts, Nuts and Rivets.—Bolt and nut specifications show improvement, although there is little new business. Prices are firm. There is some irregularity in both large and small rivets.

Coke.—There has been no easing up in the situation, and prices are slightly higher than a week ago. Connellsville foundry coke is now quoted at $11 to $12 per ton, ovens, but there is no demand from foundries at that price, and some consumers are buying Virginia and West Virginia foundry coke, which is quoted at $6.50 at ovens. The demand for by-product coke for domestic purposes continues heavy, with $12, ovens, the present ruling price. Ohio by-product foundry coke is quoted at $8.50, ovens, for February shipments.

Old Material.—The scrap market has not yet taken on any life. Not only are mills not buying, but they are still holding back on shipments. Dealers are not trying to push scrap on the market, so that not much is being offered. Heavy melting steel has declined at least 25c. a ton, but other grades are unchanged with quotations regarded as nominal. Distress material is moving at slightly less than quoted prices, but if dealers had inquiries they would probably try to get a little more than the prices named.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$15.75 to $16.25
Rails for rolling	16.75 to 17.00
Rails under 3 ft.	19.50 to 20.00
Low phosphorus melting	18.25 to 18.50
Cast iron borings	13.25 to 13.50
Machine shop turnings	13.25 to 13.50
Mixed borings and short turnings	13.25 to 13.50
Compressed sheet steel	15.50 to 16.00
Railroad wrought	14.50 to 15.00
Railroad malleable	20.00 to 20.50
Light bundled sheet stampings	12.50 to 12.75
Steel axle turnings	15.25 to 15.50
No. 1 cast	18.00 to 18.50
No. 1 busheling	13.50 to 13.75
Drop forge flashings	13.25 to 13.50
Railroad grate bars	13.75 to 14.00
Stove plate	13.75 to 14.00
Pipes and flues	11.50 to 12.00

Philadelphia

Some Improvement in Steel Specifications But New Business Comes Slowly

PHILADELPHIA, Feb. 2.—Orders for steel in January, mostly in the form of specifications against contracts, were considerably lower in volume than the steel shipped during the same period. In the final week of January consumers and jobbers specified quite freely against the monthly quotas of their first quarter contracts, but the amount of steel business coming to light that is not already provided for on a contract basis is extremely small. There has been a slight improvement in the volume of structural steel lettings, but a good deal of projected work is being held back, partly on account of the fact that many fabricators cannot make deliveries of fabricated material before spring. From the viewpoint of mill operation the steel situation is healthy, but selling offices are beginning to show a little concern over the lack of new business.

There has been a little better buying of pig iron in the last week, but the market cannot be described as active. The scrap market is exceedingly quiet, but prices have not shown much further weakness.

Ferroalloys.—Sales of ferromanganese are few, most consumers being full covered. The price remains unchanged at $115 for either domestic or foreign alloy.

Billets.—Though the nominal quotations on billets are $36, Pittsburgh, for rerolling quality and $41 for forging quality, buyers have been pressing for concessions and in some instances have received as much as 50c. or $1 a ton. The volume of buying is small.

Pig Iron.—An eastern Pennsylvania furnace which has been quoting about 50c. a ton under the quotations of other furnaces in order to obtain a backlog, has made a sale of several thousand tons to a cast iron pipe company and is reported to be a less anxious seller. However, its quotations are still on the basis of $22.50, furnace, while other makers of iron name a minimum of $23. Sales in the past week have been more numerous, but the market remains quiet because most producers are well provided with orders and consumers are generally covered through first quarter.

Some inquiry for second quarter has appeared, and in one or two instances melters have indicated a desire to provide for their wants up to Oct. 1. As a general rule, however, neither furnaces nor consumers are anxious to go beyond this quarter while the coke situation remains chaotic. Heating coke sales today ranged from $11 to $13.50, Connellsville, and blast furnace and foundry coke are affected accordingly. Foreign iron is being sold at low prices here notwithstanding the fact that prices have advanced in Europe. Last week's importations at this port were 6200 tons.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$23.76 to $24.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	24.26 to 24.63
East. Pa. No. 1X	24.76 to 25.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic, delivered eastern Pa.	23.00 to 23.50
Gray forge	23.00 to 23.50
Malleable	24.00 to 25.00
Standard low phos. (f.o.b. furnace)	23.00 to 24.00
Copper bearing low phos. (f.o.b. furnace)	24.00

Plates.—Current sales of plates are mostly at 1.80c., Pittsburgh, there being little business of sufficient attractiveness to test that price. Specifications against contracts, which were scarce in the first three weeks of January, showed a decided improvement last week and the mills have fairly good rolling schedules for the next few weeks.

Structural Material.—The Ford Motor Co.'s assembly plant at Chester, Pa., which has been pending for months, and the addition to the Baldwin Locomotive Works at Eddystone, totaling 3100 tons, have both been awarded to the McClintic-Marshall Co. Another building for the Sesqui-Centennial Exposition, requiring 2000 tons, is up for bids. Structural shapes are generally quoted at 1.90c., Pittsburgh, but in the immediate Philadelphia district there is such keen competition that concessions of $1 and $2 a ton are not infrequent. On a shipment of structural steel to Florida the delivered price was equivalent to 2c., Philadelphia.

Bars.—About 1200 tons of concrete reinforcing bars will be required for the National Press Club Building, Washington, and about 600 tons for a telephone building there. The bars for Montgomery Ward & Co.'s warehouse in Baltimore, amounting to 900 tons, will be supplied by a Baltimore firm. Specifications against bar contracts are only fair. On current orders the price holds firm at 2c., Pittsburgh. Bar iron demand in the last month has been particularly good because of large railroad orders. The price remains 2.22c., Philadelphia.

Sheets.—Some buyers report their ability to buy black sheets at 3.25c., Pittsburgh, and galvanized sheets at 4.50c., but sellers are frequently unable to obtain confirmation of sales at these prices because so little new business is coming up. Blue annealed sheets seem to be firm at 2.50c., Pittsburgh.

Warehouse Business.—Although there is still some variation in prices quoted by local warehouses, particularly on bars, the price situation is more uniform than a few weeks ago. For local delivery quotations are:

Soft steel bars and small shapes, 3c. to 3.20c. per lb.; iron bars (except bands), 3c. to 3.20c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel, planished, 4.30c.; tank steel plates, ¼-in. and heavier, 2.80c. to 3c.; tank steel plates ⅜-in., 3c.; blue annealed steel sheets, No. 10 gage, 3.50c.; black sheets, No. 28 gage, 4.65c.; galvanized sheets, No. 28 gage, 5.85c.; square, twisted and deformed steel bars, 3c.; structural shapes, 2.75c. to 2.90c.; diamond pattern plates, ¼-in., 5.30c.; ⅜-in., 5.50c.; spring steel, 5c.; rounds and hexagons, cold-rolled steel, 4c.; squares and flats, cold-rolled steel, 4.50c.; steel hoops, 4c. to 4.25c., base; steel bands, No. 12 gage to ⅞-in., inclusive, 3.75c. to 3.90c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 6.50c.

Imports.—Pig iron imports in the week ended Saturday were 6206 tons, of which 1945 tons came from Germany, 1850 from England, 1643 from India and 768 from Alsace. Other imports were: Manganese ore from India, 4000 tons, from British West Africa, 5010 tons; steel billets from Sweden, 150 tons; hoop steel from England, 64 tons; ferromanganese from England, 35 tons.

Old Material.—Buying and selling of scrap are as nearly at a standstill as they have been in months. Brokers continue to cover in a moderate way on contracts for heavy melting steel, but usually pay no more than $16. Low phosphorus scrap, couplers and knuckles and rolled steel wheels have declined.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$16.00 to $16.50
Scrap rails	16.00 to 16.50
Steel rails for rolling	18.00 to 18.50
No. 1 low phos., heavy, 0.04 per cent and under	20.00 to 21.00
Couplers and knuckles	19.00 to 20.00
Rolled steel wheels	19.00 to 20.00
Cast iron car wheels	17.50 to 18.00
No. 1 railroad wrought	18.00 to 18.50
No. 1 yard wrought	16.50 to 17.00
No. 1 forge fire	14.50 to 15.00
Bundled sheets (for steel works)	14.00
Mixed borings and turnings (for blast furnace)	13.50 to 14.00
Machine shop turnings (for steel works)	14.00
Machine shop turnings (for rolling mill)	14.50
Heavy axle turnings (or equivalent)	15.00
Cast borings (for steel works and rolling mill)	14.00 to 14.50
Cast borings (for chemical plant)	16.50
No. 1 cast	18.00 to 18.50
Heavy breakable cast (for steel works)	17.00 to 17.50
Railroad grate bars	14.50
Stove plate (for steel works)	14.50
Wrought iron and soft steel pipes and tubes (new specifications)	16.00 to 16.50
Shafting	22.00 to 23.00
Steel axles	22.00 to 23.00

REINFORCING STEEL

New Projects Involve More Than 7500 Tons of Bars With Awards of 3700 Tons Reported

New projects involving reinforcing steel reported in the past week, reached the largest total of any previous week this year, more than 7500 tons. A sizable total of awards is also reported, about 3700 tons. One of the largest awards was the steel for the National Press Club building, Washington, about 1200 tons. Among the new projects are two tonnages of 2000 tons each, one for a sewage disposal plant in Akron, Ohio, the other for the Cleveland Union Terminal.

Apartment building, 424 Melrose Avenue, Chicago, 500 tons rail steel, to Calumet Steel Co.

Western Hills high school, Cincinnati, 350 tons, to Bourne-Fuller Co.

Aronson Building, San Francisco, 200 tons, to an unnamed bar jobber.

Gillespie Dam Bridge, Phoenix, Ariz., 100 tons, to an unnamed interest.

Gold Seal Laundry, Brooklyn, N. Y., 125 tons, partly to Truscon Steel Co.

Baseball stadium, Newark, N. J., 100 tons to Fuller Brothers.

Stancourt Laundry, New York, 125 tons to Buffalo Steel Co.

Mohegan Tube Co., building, Brooklyn, N. Y., 250 tons, reported awarded to Joseph T. Ryerson & Son.

Montgomery Ward & Co., warehouse in Baltimore, 900 tons, reported awarded to Baltimore firm.

Pittsburgh Parking Garage Co., Pittsburgh, 300 tons, to Carlem Engineering Co.

Webster Hall Hotel, Pittsburgh, 700 tons, to Kalman Steel Co.

St. Francis Xavier Church, Pittsburgh, 50 tons, to Carlem Engineering Co.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

Y. M. C. A., 1800 West Congress Street, Chicago, footings for building, 109 tons.

Garage, Washington, Curtis and Carpenter Streets, Chicago, 1137 tons; Holabird & Roche, architects.

Reid-Murdock Co., Chicago, addition to warehouse, 100 tons.

Waterworks reservoir, Racine, Wis., 300 tons.

Maremont Mfg. Co., Sixteenth Street and Ashland Avenue, Chicago, 165 tons; T. W. Snyder, general contractor.

Sisters of Mercy, Cincinnati, building, 140 tons.

Westchester County Park Commission, N. Y., Tibbets Brook Park, swimming pool, 100 tons.

National Press Club Building, Washington, D. C., 1200 tons.

Chesapeake & Potomac Telephone Co. building, Washington, D. C., 600 tons.

Sewage disposal plant, Akron, Ohio, 2000 tons.

Cleveland Union Terminal Co., 2000 tons.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
Jan.	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
27.....	14.12½	13.75	61.12½	9.25	9.10	8.37½	8.02½
28.....	14.00	13.62½	61.00	9.25	9.10	8.35	8.00
29.....	14.00	13.62½	60.75	9.25	9.10	8.35	8.00
30.....	14.12½	13.62½	....	9.25	9.10	8.35	8.00
Feb.							
1.....	14.12½	13.75	62.00	9.25	9.10	8.37½	8.05
2.....	14.12½	13.75	62.00	9.25	9.10	8.42½	8.07½

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Feb. 2.

None of the markets are active. In some, prices are steady and in others a little weaker. The copper market is virtually unchanged. Monthly statistics have strengthened the tin market and prices are higher. Again there has been hardly any change in the lead market, but zinc has turned a little stronger after its sharp decline.

Copper.—A slight weakness developed the latter part of last week and sales of a few lots were made at 13.90c. to 13.95c., delivered. The total was small and there were but one or two sellers who would shade 14c. Since then London has turned stronger and all producers are now firm at 14c., delivered. It develops that various estimates of domestic sales, which were made about two weeks ago, place the total at 65,000,000 to 80,000,000 lb. Since then there has been very little buying, but yesterday and today consumers are showing more interest and there are a few substantial inquiries. One producer reports that mills in the West, both brass and copper, are accumulating large numbers of orders. The general opinion is that consumers must again buy fairly liberally, even for February and March delivery. The export market continues very quiet, with exporters bidding 13.95c., f.a.s., and some sellers asking 14.32½c., c.i.f. Lake copper, after selling at 14c. to 14.12½c., last week, is now 14.12½c., delivered.

Copper Averages.—The average price of Lake copper for the month of January, based on daily quotations in THE IRON AGE, was 14.17c., delivered. The average price of electrolytic copper was 13.84c., refinery, or 14.09c., delivered.

Tin.—The most active day of the week was Thursday, Jan. 28, when 400 tons was sold. On other days about 200 tons was sold, making the total for the week 600 tons. On only one day were consumers active buyers. They have remained more or less uninterested, figuring that possibly tin would be lower, analogous to the decline in rubber. On Saturday the statistics for January appeared and revealed deliveries into American consumption of 7340 tons. The interesting feature, however, was the surprisingly small amount in stocks, namely, only 250 tons. Immediately the market turned stronger, but buyers found considerable resistance among sellers. When the figures appeared yesterday, showing a decrease of about 1200 tons in the world's visible supply, London immediately advanced and prices here rose with sales of about 150 tons. Today the market has been very quiet, with light sales made at 62c. and spot Straits quoted at 62c., New York. London quotations today were about £2 per ton higher than a week ago, with spot standard quoted at £279 5s., future standard at £274 7s. 6d. and spot Straits at £281 5s. The Singapore price was £281. Thus far this month 50 tons of tin has arrived with 8100 tons reported afloat.

Lead.—Conditions are practically unchanged, with production and consumption evenly balanced. The prompt metal situation continues easy. The leading interest still quotes 9.25c., New York, as its contract price. In the outside market the metal is obtainable at 9c. to 9.10c., St. Louis, and 9.25c. to 9.35c., New York.

Zinc.—The decline which was proceeding last week has continued until the dead level of 8c., St. Louis, was reached, and since then prices have turned a little higher. It was stated a week or so ago that when the 8c. level appeared consumers were ready to buy quite freely, but, as is often the case, they did not do so. In the last day or so inquiry from galvanizers has been quite brisk and the resistance of sellers at 8c., which evidently stopped the decline, is disappearing. There have been a few sales at 8c. to 8.05c., St. Louis, and today the market is a little stronger at 8.05c. to 8.10c., St. Louis, for prime Western for February delivery, with the March position about 2½ points lower. The New York quotation is 8.40c. to 8.45c.

Nickel.—Wholesale lots of ingot nickel are quoted at 35c. with shot nickel at 36c. and electrolytic nickel at 39c. per lb.

Antimony.—Chinese metal for January-February shipment from China, reaching here in about three months, is quoted at 20c., New York, duty paid. The spot market is quiet with quotations ranging from 21.50c. to 22c.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is obtainable in ingot form at 27c. per lb., delivered.

Old Metals.—Business continues quiet, with no change in values. Dealers' selling prices, in cents per lb., are as follows:

Copper, heavy and crucible	13.50
Copper, heavy and wire	13.00
Copper, light and bottoms	11.75
Heavy machine composition	10.00
Brass, heavy	9.00
Brass, light	7.75
No. 1 red brass or composition turnings	9.25
No. 1 yellow rod brass turnings	9.25
Lead, heavy	8.50
Lead, tea	7.00
Zinc	5.75
Cast aluminum	21.50
Sheet aluminum	21.50

Chicago

FEB. 2.—This market is quiet. Copper is unchanged, lead has advanced slightly and antimony is quoted a little below the price which prevailed during the previous week. A surplus of zinc, resulting from overproduction, has caused the price to drop, and tin is also lower in a speculative market. Old metals are quiet and prices are unchanged. We quote, in carload lots: Lake copper, 14.15c.; tin, 62c.; lead, 9.25c.; zinc, 8.10c.; in less than carload lots, antimony, 24c. On old metals we quote copper wire, crucible shapes and copper clips, 11c.; copper bottoms, 9.25c.; red brass, 9c.; yellow brass, 8c.; lead pipe, 8c.; zinc, 5.25c.; pewter, No. 1, 37c.; tin foil, 44c.; block tin, 52c.; aluminum, 20c.; all being dealers' buying prices for less than carload lots.

Non-Ferrous Rolled Products

All brass and bronze products have been reduced ¼c. per lb. Copper products remain unchanged, outside of copper seamless tubes, which have declined ¼c. per lb. Zinc and full lead sheets have not been changed in six weeks. For New York warehouse prices see page 398.

List Prices Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight Up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets	
High brass	18¾c.
Copper, hot rolled	22½c.
Zinc	12c.
Lead (full sheets)	13c.
Seamless Tubes	
High brass	23½c.
Copper	24¼c.
Rods	
High brass	16⅝c.
Naval brass	19⅝c.
Wire	
Copper	16¼c.
High brass	19⅝c.
Copper in Rolls	21⅜c.
Brazed Brass Tubing	26⅞c.

FABRICATED STEEL

More Than 25,000 Tons of New Projects—West and South Well Represented—Awards Almost 30,000 Tons

The past week brought out a sizable total of new business, more than 25,000 tons being reported in new projects. Awards, also, reached a rather large total with nearly 30,000 tons reported placed. Among the new projects involving large tonnages of steel, the Harmon Sport Auditorium in Chicago was the largest with 6500 tons. Another large inquiry was that of the Hunter Dulin building in San Francisco, which will require about 5000 tons. Much of this new business was from the West and South. Of the tonnages awarded, one of the largest was about 6000 tons for a section of New York subway and another totaled about 3000 tons for New York Central railroad bridges.

New York subway, section 5, route 105, 6000 tons, to American Bridge Co.

Long Island Railroad, electrification work on Bay Ridge line, 1400 tons, to Bethlehem Steel Co.

Apartment building, West End Avenue, New York, 1000 tons, to Hinkle Iron Co.

Apartment building, Brooklyn, 1000 tons, to A. E. Norton, Inc.

Union Memorial Nurses' Home, Baltimore, 625 tons, to a Baltimore fabricator.

Manufacturing building, Trenton, N. J., 150 tons, to American Bridge Co.

Garage, Syracuse, N. Y., 500 tons, to Union Structural Co.

Pennsylvania Railroad, bridge, 550 tons, to McClintic-Marshall Co.

New York Central, bridges, 3000 tons, to Mount Vernon Bridge Co.

New York Central, bridge, 175 tons, to American Bridge Co.

The Structural Steel Board of Trade of New York reports the following jobs totaling 5176 tons as having been taken by members: Telephone buildings at Tuckahoe and Garden City, N. Y., to Eidlitz & Ross; Colonial Bank, West 194th Street, New York, to Bethlehem Fabricators, Inc.; theater, 165th Street and Morris Avenue, New York, to Post & McCord; office building at Far Rockaway, Long Island, loft building at 254 West Thirty-first Street, New York, and a factory on Staten Island to Lehigh Structural Steel Co.

Koplon Building, Buffalo, 350 tons, to R. S. McMannus Steel Construction Co.

Barrett Lines, Cincinnati, six barges, 1700 tons, to American Bridge Co., and towboat, 350 tons, to Howard Shipyards & Dock Co., Jeffersonville, Ind.

Stearns & Foster Co., Cincinnati, plant addition, 270 tons, to Southern Ohio Iron Works, Cincinnati.

Weirton Steel Co., Weirton, W. Va., sheet mill extension, 1200 tons, to McClintic-Marshall Co.

LaBelle Transportation Co. (Wheeling Steel Corporation), 5 hopper coal barges, 600 tons, to Jones & Laughlin Steel Corporation.

Montreal Mining Co., Hurley, Wis., mine shaft sets, 200 tons, to American Bridge Co.

Chicago, Rock Island & Pacific, girder span for Victor, Iowa, 123 tons, to American Bridge Co.

St. Louis University, St. Louis, gymnasium, 215 tons, to St. Louis Structural Steel Co.

Dickman Real Estate Co., St. Louis, office building, 165 tons, to Atlas Iron Works, Bridgeport, Conn.

Allied Steel Castings Co., West Harvey, Ill., shop building, 100 tons, to Gate Structural Steel Co., Chicago.

Gillespie Dam Bridge, Phoenix, Ariz., 1000 tons, to Virginia Bridge & Iron Co.

Transit shed, berths A and B, Los Angeles, 450 tons, to McClintic-Marshall Co.

A. M. Castle & Co., San Francisco, warehouse, 200 tons, to Brode Iron Works.

Rio Vista, Cal., dredge pipe, 100 tons, to Pacific Coast Engineering Co.

Ford Motor Co., assembly plant consisting of three buildings at Chester, Pa., 2300 tons, to McClintic-Marshall Co.

Baldwin Locomotive Works, addition to plant at Eddystone, Pa., 800 tons, to McClintic-Marshall Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Society for Savings, bank building, Hartford, Conn., 150 tons.

New York University, school of aeronautics, 175 tons.

Theater, Charlotte, N. C., 150 tons.

Hotel, Fort Myers, Fla., 800 tons.

Highway bridge, Paterson, N. J., 500 tons.

Theater, Hartford, Conn., 250 tons.

Naval Air Station, Pensacola, Fla., 300 tons.

Maine State Hotel, Portland, Me., 400 tons.

Owen Glass Co., Charleston, W. Va., building, 1500 tons; bids in Feb. 6.

Phoenix-Yuma highway bridge in Maricopa County, Ariz., 1000 tons; Lee-Moore Construction Co., Tucson, Ariz., low bidder on general contract.

Dayton, Ohio, waterworks, 100 tons; bids in.

Indiana State Highway Commission, Indianapolis, 14 bridges, tonnage unknown; bids close Feb. 16.

U. S. Engineer's Office, Louisville, bear-trap leaves for dams Nos. 45 and 46, Ohio River, 620 tons; new bids will be taken until Feb. 7.

Harmon Sport Auditorium, Chicago, 6500 tons.

Crane Co., Chicago, train shed, 1500 tons.

Canal Bank & Trust Co., New Orleans, office building, 5000 tons.

National Exchange Bank Building, Milwaukee, 400 tons, to Worden-Allen Co.

Hunter Dulin Building, San Francisco, 3000 to 5000 tons; general contract to Lindgren & Swinerton; steel bids to be called for immediately.

Pipe line, Portland, Ore., 1600 to 2000 tons; bids Feb. 3.

Grant Building, San Francisco, 850 tons; bids being received.

Siletz River bridge, Lincoln County, Ore., 170 tons; Gilpin Construction Co. low bidder on general contract.

Elmhurst School, Oakland, Cal., 150 tons; bids Feb. 2.

Prescott School, Oakland, addition, 140 tons; bids received.

Transportation Building, Sesqui-Centennial Exposition, Philadelphia, 2000 tons.

RAILROAD EQUIPMENT

Car Inquiries Total 5700 — Seaboard Air Line Asks for More Than 3000—Orders Small

A larger total of inquiries for cars developed last week than in any previous week since the first of the year. Purchases, however, reached a low level, with orders for only 50 reported. Of 5700 cars under inquiry in the past week, the Seaboard Air Line contributed a list of 3000 to 4000, a revision of a previous inquiry. Another outstanding inquiry of the week was from the Southern Pacific for 1100 box and 500 gondola cars.

The Seaboard Air Line has revised its inquiry and is now asking for bids on 1000 to 1500 50-ton gondolas, 1000 to 1500 ventilated box cars and 1000 to 1500 closed box cars, but will probably buy only one type of box car.

The Siam State Railways are inquiring in this country for 150 steel "goods waggons."

The South African Railways are asking for bids here on 250 to 500 "waggons."

The Fruit Growers Express has ordered 300 steel underframes for cars from the Ryan Car Co.

The Missouri Pacific is expected to order 600 box car bodies. This road has ordered 50 gondola cars of 70-ton capacity from the Pressed Steel Car Co.

The Southern Pacific is inquiring for 1100 box cars and 500 gondola cars. The company, it is reported, will also build 500 gondola cars in its own shops.

The Chicago & Eastern Illinois has revived its inquiry for 500 70-ton hopper cars.

The Premier Equipment Corporation, Houston, Tex., has sent out an inquiry for 100 tank cars, half of 8000-gal. and the other half of 10,000-gal. capacity.

The Central Railroad of New Jersey is inquiring for 25 passenger coaches, 5 passenger-baggage cars and 5 baggage-express cars.

The Brooklyn-Manhattan Transit Co. is in the market for 201 articulated car bodies and trucks for subway cars.

It is reported that the Chicago, Indianapolis & Western is in the market for 500 gondolas and that the Chicago, Milwaukee & St. Paul will soon enter the market for 1000 stock cars in addition to 700 gondolas which were announced some time ago.

PERSONAL

Christopher J. Mogan, general superintendent Pittsburgh Steel Co. since 1912, has resigned and W. C. Sutherland, who has been superintendent Pittsburgh Steel Products Co., the seamless tube division of the former company, has been named to succeed him. Mr. Mogan has been active in the steel industry for almost 40 years and before going with the Pittsburgh Steel Hoop Co., Glassport, Pa., predecessor of the Pittsburgh Steel Co., in 1899, was master mechanic at the old Painter Mills, Pittsburgh. He held the same position at Glassport until 1904, when he was appointed superintendent to succeed J. J. Rebman. When the Pittsburgh Steel Hoop Co. completed its plant at Monessen, Pa., in 1908, and became the Pittsburgh Steel Co., Mr. Mogan was appointed assistant superintendent and transferred to Monessen. Four years later he was made general superintendent. W. C. Sutherland has been identified with the Pittsburgh Steel Co. for the past eight years, first as superintendent of the Allenport, Pa., plant and since 1920 as superintendent of both the Monessen and Allenport plants. He has been in the steel business since the latter part of 1901, when he entered the employ of the Illinois Steel Co., at its South Works, as a chemist. In 1907 he went with the Tennessee Coal, Iron & Railroad Co. just before its absorption by the United States Steel Corporation and had a part in the construction of the rail mill of that company. In 1910 he was transferred to Gary, and was active in the construction and operation of several units of that plant. He came to the Pittsburgh Steel Products Co. in December, 1917. He is a graduate of the University of Wisconsin, class of 1900, and is a member of the Phi Kappa Psi fraternity.

W. C. SUTHERLAND

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Samuel H. Whitaker, associated with Walter, Wallingford & Co., Cincinnati, for the past 12 years, has resigned and will go to Florida in an effort to regain his health. Upon his return he will confine his business interests to the Robert Sloan Co., Cincinnati, automobile distributer, of which he is secretary and treasurer, and to the F. A. Klaine Co., Cincinnati, stove manufacturer, of which he is vice-president and secretary. Mr. Whitaker was at one time managing director of the Dayton Coal & Iron Co., Dayton, Tenn.

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Walter H. Rastall, chief of the Machinery Division of the Department of Commerce, left Washington Feb. 1 for a trip to various cities in the mid-West. Mr. Rastall will visit Cleveland, Rockford, Ill., and Chicago en route and will interview producers and exporters of machinery in those cities concerning matters relative to the various problems of the machinery industry.

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J. C. Williams, vice-president and general manager Weirton Steel Co., Weirton, W. Va., has been elected a director of that company.

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D. M. Weir, vice-president Weirton Steel Co., Weirton, W. Va., is making a Pacific Coast tour.

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H. O. Williams, vice-president and general manager of sales, Braeburn Alloy Steel Corporation, Braeburn, Pa., now is located at 803 First National Bank Building, Pittsburgh. The general and Pittsburgh district sales offices of the company have been transferred there from Braeburn.

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H. E. Richardson has been appointed district sales agent at Philadelphia for the Youngstown Sheet & Tube Co., with offices in the Franklin Trust Building. G. B. Strausner has been appointed district sales agent at Buffalo, with offices in the Liberty Bank Building. Myron S. Curtis has been appointed district sales agent at Youngstown, with offices in the Stambaugh Building.

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George O. Desautels, George O. Desautels Co., Indianapolis, will sail on Feb. 6 for a trip to Europe to do some special work in Italy representing the Erie Foundry Co., Erie, Pa., and the Heppenstall Forge & Knife Co., Pittsburgh. While abroad he will call on plants in Switzerland, France, Belgium, Germany and England, pertaining to the manufacture of drop forging and die work.

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A. H. Tischer has recently joined the engineering department of Foote Brothers Gear & Machine Co., Chicago, as designing engineer. He was connected with the Foote company during 1916 and 1917, and left to join the United States Air Service. After the war Mr. Tischer became connected with the P. T. Wheel Co., Dayton, Ohio, as designing engineer, and later with the Steinmetz Electric Motor Car Corporation as engineer in the tractor division.

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W. Vernon Phillips, who was recently succeeded by George B. Doane as chairman of the board of directors of the Perry, Buxton, Doane Co., iron and steel scrap, Pennsylvania Building, Philadelphia, will devote his entire attention hereafter to the business of F. R. Phillips & Sons Co. and allied companies, the Ettinger-Phillips Co. and the Phillips-Laffitte Co.

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W. T. Amis, in charge of the foreign department of E. Arthur Tutein, Inc., 52 Vanderbilt Avenue, New York, sailed for Europe on Jan. 30 and will be gone two or three months.

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E. T. Freeman, superintendent Wisconsin Gray Iron Foundry Co., Milwaukee, has resigned because of ill health.

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Prof. F. F. McIntosh, who has been acting head of the department of mining and metallurgical engineering, Carnegie Institute of Technology, Pittsburgh, for the past year, has resigned to accept a position with the Crucible Steel Co. of America.

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James F. O'Donnell has been appointed receiver of the St. Louis Coke & Iron Corporation, 208 South LaSalle Street, Chicago, by Judge Louis Fitzhenry of the United States District Court. Mr. O'Donnell takes the place of James Duncan, Alton, Ill., who died on Jan. 9 in New York.

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A. A. Grubb, Ohio Brass Co., Mansfield, Ohio, addressed the Quad-City Foundrymen's Association at the Jan. 25 meeting, held at the LeClaire Hotel, Moline, Ill. His subject was "Sand Conservation and Reclamation."

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James Aston, metallurgical engineer in charge of research, A. M. Byers Co., Pittsburgh, has been appointed professor of mining and metallurgy and head of the department of mining and metallurgical engineering of Carnegie Institute of Technology. The appointment fills the vacancy caused by the death last February of Prof. Fred Crabtree. Mr. Aston has served as a member of the advisory board of prominent representatives of the metallurgical industries of the Pittsburgh district, which cooperates with the Carnegie Institute of Technology and the United States Bureau of Mines in conducting research in metallurgy. He was born in England in 1876. He is a member of the American and the British Iron and Steel Institutes, American Electro-Chemical Society, American Society

of Mechanical Engineers, American Society for Testing Materials and the Engineers' Society of Western Pennsylvania.

M. R. Bembower has been named general manager of the newly organized Elyria Mfg. Corporation, Elyria, Ohio. The company manufactures a general line of machine screw products.

George W. Burrell, who has been vice-president and assistant general manager of the Wellman-Seaver-Morgan Co., Cleveland, since 1922, and who has been associated with the company for 28 years, will retire when the company holds it annual meeting this month. He started with the company as a draftsman and worked up through various positions, including works manager and second vice-president in charge of operations.

A. M. Foster, president Foster Bolt & Nut Mfg. Co., Cleveland, sailed Jan. 23 on a trip to Europe and the Near East. He will return about May 1.

F. J. Griffiths, who has been president of the Central Steel Co., Massillon, Ohio, was elected chairman of the board at a meeting of the directors, Feb. 28, to fill the vacancy caused by the recent death of R. E. Bebb. C. E. Stuart was elected president to succeed Mr. Griffiths. Mr. Stuart has been vice-president and treasurer and will retain the latter office. He has been an active executive of the company since its organization, and has devoted his attention largely to its financial affairs. Other officers elected were B. F. Fairless, vice-president and general manager; J. M. Schlendorf, vice-president in charge of sales; Charles C. Chase, Jr., secretary. George H. Freeborn, auditor, was elected to the board of directors and appointed assistant treasurer. The executive committee was enlarged from three to five members and includes Messrs. Griffiths, Stuart, Fairless, Schlendorf and William G. Mather, of the Cleveland Cliffs Iron Co., Cleveland.

Arthur F. Blasdell, general manufacturing superintendent, General Electric Co., Pittsfield, Mass., resumed his duties Monday. For the past six months he has been in southern California.

Charles E. Barba has been made mechanical engineer, Boston & Maine Railroad. During the war Mr. Barba was in charge of several important departments of the Watertown Arsenal, Watertown, Mass., and since 1922 has been superintendent Osgood Bradley Car Co., Worcester, Mass. He was graduated from Lehigh University in 1901. After two years with the Ordnance Department, Washington, he served thirteen years with the Pennsylvania Railroad. Resigning in 1915, Mr. Barba joined the Midvale Steel Co., Philadelphia, and was superintendent when he left to take up war work at the Watertown Arsenal in 1917.

R. S. Jones has joined the sales organization of the Barney Machinery Co., Union Trust Building, Pittsburgh. Mr. Jones was formerly connected with the Cincinnati Planer Co.

O. A. Bloomquist, formerly in the Detroit office of the Joseph T. Ryerson & Son, Inc., has become associated with Leonard R. Nourie, Park Building, Pittsburgh, district representative of Joseph T. Ryerson & Son, Inc., and the Niagara Machine & Tool Works, Buffalo.

Joseph Himmelsbach, consulting engineer and industrial architect, 136 Liberty Street, New York, returned last week on the steamer Columbus from a six-weeks' European trip. He made a study of several new industrial plants in Germany, France and Belgium.

R. L. Major, Jr., formerly connected with the Lancaster Iron Works and with the Dover Boiler Works, has been appointed manager of the Philadelphia office of R. S. Newbold & Son Co., at 319 Perry Building.

C. M. Bogert has been appointed district manager for Connecticut of the Diamond State Fibre Co., Bridgeport, Pa., with offices at South Norwalk, Conn. W. R. Elsenhans, formerly of the Bridgeport home office staff, is now district manager at Philadelphia, with offices at 822 Drexel Building. Mr. Bogert and Mr. Elsenhans will be in charge of the sale of both Diamond fiber and Celoron in their respective districts.

William C. Reilly, vice-president Youngstown Sheet & Tube Co., Youngstown, has been intrusted with full responsibility for operations. Acting with him in these duties is Elmer T. McCleary, who has been advanced from the position of assistant to the vice-president, to a vice-presidency. Charles Snelling Robinson, vice-president, has been relieved of operating duties and given charge of subsidiary companies and raw materials. His office is removed from the general works office on Poland Avenue, Youngstown, to the main executive headquarters in the Stambaugh Building, Youngstown. These changes closely follow the advancement of Frank Purnell from vice-president in charge of sales to assistant president, with full executive authority in the absence of President Campbell. Messrs. Reilly and Robinson have been associated for many years with Mr. Campbell in the conduct of the Sheet & Tube company and have assisted in its development. For many years Mr. Reilly served as general superintendent of the works at East Youngstown. Upon the acquisition several years ago of the Steel & Tube Co. of America, he was given the task of supervising the rearrangement and modernization of that property according to a well defined Sheet & Tube program. In this connection, Mr. Reilly spent much of his time in the Chicago territory. Mr. McCleary is one of the younger men in the operating organization, who has risen, within the space of a comparatively few years, to a position of major responsibility. Mr. Robinson has been vice-president and general manager, and has been immediately in charge of the operating policies under President Campbell. Owing to the growth of the corporation and the detailed work involved in its management, he has been relieved of operating duties. The Sheet & Tube company has 30 subsidiary companies and interests in 20 iron ore companies, in addition to other interests, and Mr. Robinson will hereafter have charge of that department of the organization. President Campbell has gone to Florida, where he plans to spend the remainder of the winter.

F. H. Moyer has been appointed general superintendent of operations, United Alloy Steel Corporation, Canton, Ohio. Mr. Moyer, after graduating from Cornell University in 1899, was associated with the Carnegie Steel Co., the Indiana Steel Co. and the Cambria Steel Co., in engineering capacities, up to December, 1920, when he assumed the duties of assistant to works manager of the Pittsburgh Crucible Steel Co., Midland, Pa. In January, 1923, he joined the United Alloy Steel Corporation as chief engineer, and held that position until Jan. 1, 1925, when he was appointed assistant to the vice-president in charge of operations.

Alexander D. Darragh, recently with E. Arthur Tutein, Inc., 52 Vanderbilt Avenue, New York, and formerly with the Carnegie Steel Co. and the Consolidated Steel Corporation, has joined the New York sales organization of the Ludlum Steel Co., Watervliet, N. Y.

R. H. Dougherty has been appointed assistant general manager, United Alloy Steel Corporation, Canton, Ohio. Mr. Dougherty started in the steel business in 1899 with the American Steel Hoop Co. Upon its absorption by the United States Steel Corporation he entered the employ of the Carnegie Steel Co., where he remained until becoming associated with the United Alloy Steel Corporation in 1919. He was production manager until May, 1925, at which time he was placed in charge of the sheet division, including the Berger factory, reporting to the vice-president in charge of operations.

OBITUARY

ALPHONSO BENJAMIN BOWERS, inventor of the centrifugal hydraulic pump and dredger, over which litigation as to patent rights waged for more than 30 years, died at his home here today in his ninety-sixth year. He was a civil, mechanical and hydraulic engineer of world-wide reputation. Mr. Bowers was born in West Baldwin, Me., Sept. 25, 1830. When 16 he built his first dam and in 1853 went to California, where he engaged in engineering, teaching and lecturing. He was principal of the Benecia Collegiate Institute of San Francisco and among his early exploits was the dredging of San Francisco harbor. He invented a method of cheap transportation of earth by a stream of water on a down grade in an open flume for building dams and embankments. He first used flexibly connected floating pipes and a method of building levees through these pipes, depositing the earth in windrows.

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FRED PARKER WRIGHT, general manager of the Crescent Coal Co., Nashville, Tenn., for 26 years, died at his home in Bevier, Ky., on Jan. 9, death being due to acute bronchitis with complications. Mr. Wright had just celebrated his seventy-fourth birthday, having been born on Dec. 5, 1851, in Winchester, Mass.

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I. H. THEDIECK, president Sidney Machine Tool Co., Sidney, Ohio, died at the Mt. Carmel Hospital in Columbus, Ohio, Jan. 20. Mr. Thedieck had been connected with the company organization since 1914, and had been president of the board of directors since that time. He was president, also, of the Monarch Machine Tool Co., also of Sidney, and of the Thedieck Department Store Co. of Sidney. He was a director of the Whipp Machine Tool Co., Sidney, of the Anderson Body Co., of the Sidney Telephone Co. and of the First National Exchange Bank. Mr. Thedieck was born in Althousen, Germany, Jan. 30, 1855, and arrived in the United States before the age of 17. His son, Frank P. Thedieck, has been managing the affairs of Mr. Thedieck since he was stricken with his fatal illness.

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FRANK HARRIS, president Frank Harris Sons Co., Inc., 332 South Michigan Boulevard, Chicago, died Jan. 17, in Chicago. He was born in Chicago, March 21, 1869. He received his education in the Chicago public schools and in 1890 he became associated with his father and brothers in what was then called the Chicago House Wrecking Co. In 1910 the name of the company was changed to Harris Brothers Co. and Mr. Harris was made treasurer. He resigned from that position in 1922 to become president of the Frank Harris Sons Co., dealer in lumber and building materials.

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THOMAS ANDREW GILLESPIE, best known to the steel industry as head of the East Jersey Pipe Corporation, Paterson, N. J., although his other interests were numerous, died on Jan. 27 at his home at West Orange, N. J., at the age of 73. He was born in Pittsburgh, July 1, 1852. In his early days Mr. Gillespie was associated with George Westinghouse in the development of natural gas in Pittsburgh and later engaged in business for himself as a maker of iron bolts. In 1890 he formed with his brother the contracting firm of T. A. & R. G. Gillespie and successfully completed many large understakings. Later he formed the T. A. Gillespie Co., which sprang into prominence as one of the first manufacturers of shells for the Allied Governments, before the entrance of the United States into the War. He leaves three sons, one of whom, Thomas H., is now head of the East Jersey Pipe Corporation, and a daughter.

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LOUIS FISHER WALTER, 67 years of age, formerly senior member of the firm of Walter, Wallingford & Co., Cincinnati, pig iron dealers, died at his home in that city on Jan. 28. He was associated with the company for 30 years, but on Jan. 1 last disposed of his interests to B. A. Wallingford. He is survived by his widow, a sister and a brother, C. Wood Walter, of the Cincinnati Milling Machine Co.

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ARTHUR R. BUSH, manager industrial department General Electric Co., died at his home in Schenectady, N. Y., on Jan. 24. Mr. Bush was born in Fall River, Mass., in 1861, was graduated from Annapolis in 1882 and served two years in the United States Navy. In 1884 he entered the employ of the Edison Co., following which he was connected with the New England Wiring and Construction Co. In 1892 he was made district engineer of the Edison General Electric Co. in the New England district, resigning this position in 1904 to accept the vice-presidency of the Union Bag & Paper Co. In 1906 he returned to the General Electric Co., where he became manager of the power and mining department, and later manager of the industrial department.

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H. L. HENDERSHOT, Los Angeles district representative Reading Iron Co., died suddenly at Paso Robles, Cal., Jan. 14, while on a business trip. He was a native of Parkersburg, W. Va., and had represented the Reading Iron Co. in the sale of oil country pipe since 1919.

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W. P. CHAMPNEY, for years president Eberhard Mfg. Co., Cleveland, died at Sea-Breeze, Fla., Jan. 24, at the age of 74 years. He recently resigned as president of the Eberhard company, but remained on the directorate.

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N. WHITE THOMAS, for many years identified with the H. B. Rust Engineering Co., Pittsburgh, died at his home in that city Jan 25. He was born in Blacksbury, Va., 56 years ago and was a graduate of the Virginia Polytechnic Institute and of the University of Virginia.

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CHARLES A. WOLFE, one of the founders and for 35 years treasurer of the Baird Machinery Co., Pittsburgh, died at his home in that city Jan. 26. He was born in Pittsburgh 66 years ago and attended the Western University of Pennsylvania. He was formerly a director of several Pittsburgh banks.

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HARRY C. BARNHART, director of purchases Marion Steam Shovel Co., Marion, Ohio, and one of the directors of that company, died of pneumonia Jan. 29, at the age of 50 years.

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CHARLES MCKNIGHT, former president of the Carbon Steel Co., Pittsburgh, died at Atlantic City Jan. 28. He was one of the founders and for several years treasurer of the Midland Steel Co., which was acquired by the Pittsburgh Crucible Steel Co. He also was interested in, and at one time president of, the Pittsburgh Iron & Steel Foundry Co., now part of the Mackintosh-Hemphill Co. He was born in Sewickley, Pa., Sept. 2, 1863.

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M. HOWARD DOWLING, formerly an efficiency engineer, Jones & Laughlin Steel Corporation, Pittsburgh, but more recently identified with the Johns-Manville Co., died at his home in Pittsburgh Jan. 27. He was born in Pittsburgh 47 years ago. His father, Martin J. Dowling, was for many years general superintendent South Side works, Jones & Laughlin Steel Corporation. One brother, Roger Dowling, was for some years superintendent No. 2 open-hearth department, in the same plant.

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CHARTER R. WYNN, assistant treasurer Phoenix Iron Co., Philadelphia, who had been in the employ of the company for 25 years, died Friday, Jan. 29, of pneumonia.

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SAMUEL D. LATTY, founder, president and general manager of the Kirk-Latty Mfg. Co., Cleveland, died Jan. 31 of an epileptic stroke, at the age of 61 years. He had been ill for six months. He organized the Kirk-Latty company in 1895, and his company became one of the largest bolt, nut and rivet manufacturers in the United States.

Machinery Markets and News of the Works

JANUARY SALES DROP

Machine Tool Business Last Month Not So Good as That of December

Prospects Encouraging, However, as There Are Many Inquiries—Florida East Coast Issues List of 27 Tools

WHILE machine tool buying was moderately good in January, the total volume of business fell below that of December. Some machine tool builders report that their sales last month were from 50 to 80 per cent of their December sales. There are a good many inquiries, however, and prospects appear encouraging for good business in February.

Buying by the automobile industry was somewhat less in January than in December, but the same holds true with regard to manufacturers in other lines. There was comparatively little buying in the first half of the month, and although a marked improvement in demand developed in the latter half it was not sufficient to overcome the slump in the first two weeks.

The largest inquiry of the week comes from the Florida East Coast Railroad, which asks for prices on 27 tools through a Chicago firm of engineers. One of the large orders covered a considerable number of spot welders for the Ford Motor Co., Detroit.

New York

NEW YORK, Feb. 2.

MACHINE tool business continues in fairly good volume, but without unusual features. Among the orders reported for the week are the following: Pennsylvania Car Co., Kansas City, an axle lathe, a carwheel borer and a 400-ton wheel press; Oakland Motor Car Co., Pontiac, Mich., 15-in. crank slotter; Bethlehem Steel Corporation, an axle lathe for its Johnstown, Pa., plant; Latrobe Electric Steel Co., Latrobe Pa., and the Whitney Mfg. Co., Hartford, Conn., each an automatic milling machine; Incandescent Lamp Division of General Electric Co., Harrison, N. J., and United Engineering & Foundry Co., Pittsburgh, each a 16-in. geared-head lathe; Packard Motor Car Co., Detroit, a vertical shaper; Wallace Barnes Co., Bristol, Conn., a vertical surface grinder; Jackson Motor Shaft Co., Jackson, Mich., a thread milling machine; Chance-Vought Corporation, Long Island City, N. Y., milling machine, drilling machine and a bench lathe.

Announcement is made by the International Telephone & Telegraph Corporation that a new company, the Standard Electrica Sociedad Anonima, has been organized in Spain for the manufacture of telephone apparatus and equipment. This company will be affiliated with the International Standard Electric Corporation, formerly the International Western Electric Co., which was acquired last year by the International Telephone & Telegraph Corporation. It will take over the Barcelona factory and other properties of the Telefonos Bell, S. A., a subsidiary of the International Standard Electric Corporation, which was organized in 1923 to manufacture telephone equipment in Spain, Spanish colonies and protectorates. The new company will continue operation of the Barcelona factory and will begin immediately the erection of a telephone cable factory in Santander and an apparatus factory in Madrid.

The Pequot Mfg. Co., Thompson Avenue, Long Island City, manufacturer of corrugated boxes and containers, has acquired property at Glendale, L. I., as site for a new multi-story plant on which work will proceed immediately. It is estimated to cost $500,000 with machinery and is expected to be ready for occupancy in May. The company also purposes to construct a paper mill at the new location to cost approximately a like amount.

The Albany Hardware & Iron Co., 41 State Street, Albany, N. Y., is having plans drawn for a two-story automobile service, repair and garage building at 45-49 Arch Street, for company motor trucks and cars, estimated to cost $100,000 with equipment. Fuller & Robinson, 95 State Street, are architects.

Fire, Jan. 21, damaged a portion of the plant of the Amity Metal Spinning & Lighting Fixtures, Inc., 88-90 Walker Street, New York, with loss including machinery and stock. An official estimate of damage has not been announced. The loss will be replaced.

Missac Thompson, 200 Montague Street, Brooklyn, architect, is completing plans for a four-story automobile service, repair and garage building, 75 x 100 ft., at Greenwich and Beach Streets, New York, to cost $150,000 with equipment.

The J. T. Cantrell Auto Body Co., Seventh Street and McKay Avenue, Huntington, L. I., is considering rebuilding of the portion of its one-story automobile body manufacturing plant destroyed by fire Jan. 22, with loss reported at $25,000.

The Forgelight Iron Works, Inc., 619 Tenth Avenue, New York, has leased a three-story and basement factory, 55 x 90 ft., at 154th Street and Park Avenue, Bronx, and will establish a new plant at this location.

The Segal Lock & Hardware Co., 155-9 Leonard Street, New York, is said to be planning the installation of a precision lathe, bench type.

The Board of Education, Newburgh, N. Y., James Smith chairman, is considering the installation of manual training equipment in its proposed three-story high school at South Street and Fullerton Avenue, to cost $400,000. A. F. Gilbert, 358 Fifth Avenue, New York, is architect.

The Stewart Warner Speedometer Corporation, 1826 Diersey Boulevard, Chicago, manufacturer of air pumps, automobile speedometers, etc., has awarded a contract without competition to Smith & Leo, 103 Park Avenue, New York, for a four-story top addition, 90 x 100 ft., to its factory branch at 37-43 West Sixty-fifth Street, New York, to cost $125,000. Brutus Gundlach, 452 Lexington Avenue, is architect.

Thomas F. Carey, 120 Liberty Street, New York, railroad equipment and supplies, has inquiries out for a crawl-tread type, gasoline-operated locomotive crane with clamshell bucket.

The Coldak Corporation, New York, recently formed under Delaware laws with capital of 1,000,000 shares of stock, no par value, will manufacture electric refrigerators and refrigerating equipment. It will be operated under the direction of the J. G. White Management Corporation, 33 Liberty Street, and will develop extensive manufacturing facilities.

The Board of Education, Port Washington, N. Y., is considering the installation of manual training equipment in its proposed high school on the Middleneck Road, estimated to cost $700,000, for which bids will be asked soon on general contract. Delano & Aldrich, 126 East Thirty-eighth Street, New York, are architects.

The State Hospital Commission, Capitol Building, Albany, N. Y., is said to be arranging an early call for bids for electric generators and accessory equipment, air compressor and other power equipment for installation at the Kings Park State Hospital. S. W. Jones, Capitol Building, is State architect.

Fire, Jan. 23, damaged a portion of the machinery and stock at the plant of the Seamless Bedstead Corporation, 171 Clymer Street, Brooklyn, manufacturer of metal bedsteads, etc.

The Board of Public Works, South Amboy, N. J., has authorized plans for the complete electrification of the

municipal water plant. George Delaney is chairman of the committee in charge.

The Borne-Scrymser Co., South Front Street, Bayway, Elizabeth, N. J., has awarded a general contract to the Wigton-Abbott Corporation, 552 West Twenty-third Street, New York, for a four-story grease-manufacturing works, 41 x 50 ft., to cost $35,000; two-story tight barrel plant, 50 x 73 ft., to cost $34,000; and one-story power house, 38 x 67 ft., to cost $22,000.

The Public Service Electric & Gas Corporation, Public Service Terminal, Newark, N. J., is arranging a fund of $6,411,000 for extensions and improvements in plants and system in 1926. Of this amount, $3,285,000, will be used for automatic power substations, including enlargements in present plants and new substations at Carteret, Bayonne, Jersey City, Paterson and Monmouth Junction. A site is also being secured for a new power substation at Union City. The new units are estimated to cost more than $2,000,000, with equipment.

The Knickerbocker Ice Co., 41 East Forty-second Street, New York, will proceed with the erection of a new ice-manufacturing plant on Hedden Place, Newark, N. J., with an initial daily capacity of 110 tons. It will cost in excess of $60,000 with machinery. The company has also begun the construction of a new refrigerating and cold storage plant on Warren Place.

The Aimone Mfg. Co., 430 East Twenty-third Street, New York, manufacturer of furniture, has purchased a new factory on the Hudson Boulevard, between Gates and Seaview Avenues, Jersey City, N. J., comprising about 60,000 sq. ft. of floor space, and will establish a plant at this location. Raymond C. Aimone heads the company.

Fire, Jan. 25, destroyed a portion of the plant of the Newark Reliner & Patch Co., 36-38 Lillie Street, Newark, N. J., rubber specialties, with loss estimated at $40,000, including equipment and stock. Plans for rebuilding are under consideration.

The Board of Education, Nutley, N. J., plans the installation of manual training equipment in its proposed two and three-story high school to cost $650,000, for which bids will soon be asked on a general contract. Builbert & Betelle, Chamber of Commerce Building, Newark, N. J., are architects.

Ovens, power equipment, conveying and other machinery will be installed in the proposed plant to be constructed at Newark, N. J., by the Continental Baking Corporation, 512 Fifth Avenue, New York, estimated to cost $400,000. A site has been acquired.

The Acme Ring Mfg. Co., 43 Lawrence Street, Newark, has acquired a two-story factory, 50 x 100 ft., at 443-47 South Tenth Street, with adjoining property, and is said to be arranging for a new plant at this location. The property was formerly used as a jewelry factory by the Charles Becker Co.

The Sarvas Electric Co., 149 Broadway, New York, has been incorporated and will act as distributer of battery charging equipment for the Westinghouse Electric & Mfg. Co., East Pittsburgh. This business was founded by Otto Sarvas in 1919 and in 1923 a contract was entered into with the Westinghouse company and the Ward-Leonard Electric Co. The Sarvas Electric Co. has now been incorporated for the purpose of obtaining sufficient capital to take care of current business as well as expansion.

The Niles-Bement-Pond Co., 111 Broadway, New York, is selling the equipment of its Plainfield, N. J., works, which will be taken over on May 1 by the International Motor Corporation. Much of the equipment has already been disposed of.

The Accurate Metal Stamping Co. is a new corporation formed by A. A. Buehring, president, and W. E. Bewley, vice-president and secretary, with headquarters at 136 Liberty Street, New York. It will engage in the blanking, forming and assembling of the lighter forms of metal stampings. A factory has been secured in Brooklyn and new equipment is now being installed. Mr. Buehring, an experienced production engineer, was recently with the Consolidated Machine Tool Co. and Mr. Bewley was formerly a member of the Dale Machinery Co. organization at Chicago.

The Metal Products & Engineering Corporation, 11 Central Avenue, West Orange, N. J., has been incorporated with authorized capital of $125,000 and will engage in sheet metal work with special attention given to the manufacture of specialties under contract. It will also manufacture equipment for drying, heating and humidifying. A factory has been leased and is equipped with power presses, shears, etc., for handling material up to No. 10 gage. F. J. Mead is president, and manufacturing operations are in charge of George F. Schmitt, for some time superintendent of the Bentz Engineering Co., 90 West Street, New York.

The Crane Market

THERE is still but little inquiry in the New York district for either electric overhead or locomotive cranes, but in Pittsburgh and Chicago steel companies are creating considerable activity by actual inquiries and the preparation of purchases to be made later. The General Electric Co., Schenectady, N. Y., which closed last week on a 3-ton crane for Fort Wayne, Ind., is still in the market for a 3-ton crane for Schenectady. The Pennsylvania Railroad, Philadelphia, is inquiring for a 10-ton monorail crane for Meadows, N. J.

In the Pittsburgh district there has been a considerable increase in activity. The Weirton Steel Co., Weirton, W. Va., is inquiring for two ore bridges and a car dumper and is expected to begin purchase of cranes and other equipment before long. The Pittsburgh Crucible Steel Co., Midland, Pa., is asking for three cranes and the Carnegie Steel Co. is expected to need many cranes for improvements at the Homestead, Edgar Thomson and Mingo works.

The Illinois Steel Co. in the Chicago district is reported to be contemplating purchase of seven or eight overhead cranes and the Santa Fe railroad is inquiring for a 20-ton, 26-ft. span, 1-motor stationary transfer crane.

Among recent purchases are:

A. P. Grim Foundry, Inc., Raritan, N. J., a 5-ton and 10-ton, 3-motor overhead cranes for new foundry at Bound Brook, from the Northern Engineering Works.

General Electric Co., Schenectady, N. Y., a 3-ton, 42-ft. span crane from the Whiting Corporation.

Hercules Powder Co., Wilmington, Del., a 5-ton hand power crane for Brunswick, Ga., from an unnamed builder.

Annville Foundry, Annville, Pa., a 20-ton used Brownhoist locomotive crane with 2-cu. yd. clamshell bucket from Philip T. King, New York.

National Tube Co., Pittsburgh, a 10-ton grab bucket trolley for McKeesport, Pa., from the Shaw Electric Crane Co.

Union Switch & Signal Co., Swissvale, Pa., a 5-ton, 33-ft. span crane from the Shaw Electric Crane Co.

New England

BOSTON, FEB. 1.

MACHINE tool business continues moderately active, especially in used equipment. A Malden, Mass., firm, about to engage in the manufacture of jigs and fixtures, bought an additional No. 2 Brown & Sharpe surface grinder, No. 1 Morse grinder, No. 1 Wells Brothers cutter grinder, an internal grinder and a screw press, all used equipment, making its total purchases in January approximately 25 machines. Among the numerous single tools sold a punch press, 16-in. tool-room lathe, buz planer, gear hobber, plain radial drill and a 28-in. lathe illustrate the diversified used equipment moving. Sales of new tools are by no means so numerous and include a vertical grinder, and seven gravity drop hammers.

Bids have closed on $20,000 to $25,000 worth of small metal and wood-working tools wanted for a New Bedford school, but no awards have been made. The Pratt & Whitney Aircraft Corporation, Hartford, Conn., is reported as about to close on approximately $100,000 worth of equipment and has selected the tools which it will purchase.

The Boston & Maine Railroad, North Station, Boston, has started work on a coke reclamation plant in East Somerville. Plans are private.

The city of Cambridge, Mass., has under consideration an addition to the Rindge Technical School and the purchase of additional metal and wood-working equipment.

Fire recently damaged the plant of the Clinton Gas Light Co., 184 High Street, Clinton, Mass., and it will be necessary to replace equipment.

Work has started on unit No. 61, South Yard, by the Hood Rubber Co., Watertown, Mass., to cost without equipment $65,000. Plans are private.

The Mack Motor Truck Co. is about to start construction of a sales and service station on Fairfield Avenue, Bridgeport, Conn., to cost with equipment $100,000. The Warren Engineering Co., Terminal Wharf, Charlestown, Boston, will be in charge of the work.

Bids close Feb. 5 on a proposed two-story and basement, 54 x 150 ft. trade school contemplated by the city

of Torrington, Conn. H. H. Wilbur is in charge of the preliminary arrangements. Sunderland & Watson, 248 Main Street, Danbury, Conn., are associate architects.

The Sea-Sled Co., Inc., Mystic, Conn., has leased a part of the Groton Iron Works, New London, Conn., plant, where it will assemble machines. Some 200 will be employed. The company has about $800,000 worth of orders on its books. Paul G. Zimmerman is general manager.

A recent fire at the plant of the Beacon Oil Co., Everett, Mass., did considerable damage. It will be necessary to install two new large oil agitators and make tank and other repairs.

The board of directors of the Lux Clock Co., Waterbury, Conn., has authorized the immediate erection of a five-story and basement addition, 48 x 325 ft., with one-story power house, 45 x 122 ft., for which plans have been darwn by Thomas F. Freney, Waterbury, architect.

The Standard Pyroxoloid Corporation, Leominster, Mass., manufacturer of hard composition products, has been acquired by William H. Lane, treasurer of the company, through the purchase of the holdings of J. Philip Legre, heretofore president. The company is capitalized at $1,000,000. Reorganization will be carried out with general expansion plans.

Fire, Jan. 28, damaged a portion of the plant of the Plainville Electro Plating Co., Plainville, Conn. An official estimate of loss has not been announced. It is planned to rebuild.

The American Hardware Corporation, Russell & Irwin Division, New Britain, Conn., has awarded a general contract to the Aberthaw Construction Co., Boston, for the proposed two-story addition at Myrtle and Lafayette Streets to cost $125,000.

The Fafnir Bearing Co., New Britain, Conn., manufacturer of steel ball bearings, etc., is completing the erection of an addition for its annealing department. The former annealing works will be razed and a new structure erected to be used as a forge shop.

Fire, Jan. 26, destroyed a portion of the plant of the Inlaid Co., 1058 Broad Street, Providence, R. I., manufacturer of jewelry specialties, with loss estimated at $40,000 including equipment. Plans for rebuilding are under consideration.

Julian D'Este, 26 Canal Street, Boston, has awarded a general contract to the Whidden-Beekman Co., 100 Boylston Street, for his one-story foundry, 50 x 100 ft., at Charlestown, Boston, to cost approximately $30,000 with equipment.

The Voos Co., Porter Street, New Haven, Conn., manufacturer of cutlery, etc., has awarded a general contract to the National Construction Co., 151 Court Street, for its two-story addition, 35 x 44 ft., for which Dwight E. Smith, New Haven, is architect.

The Waterbury Fastener Co., Manhan Street, Waterbury, Conn., manufacturer of metal snap fasteners, etc., has tentative plans for rebuilding the portion of its factory destroyed by fire Jan. 28, with loss estimated at $150,000 including equipment. George F. Pullen is manager.

The Peck, Stow & Wilcox Co., Southington, Conn., manufacturer of hardware specialties, tools, etc., is pushing construction on a four-story addition, 50 x 100 ft., to be used primarily as a machine shop.

The Connecticut National Guard, 118th Observation Squadron, Brainard Field, Hartford, has awarded a general contract to the Bartlett-Brainard Co., 252 Asylum Street, for a one-story machine shop and steam power house. Payne & Keyes, New London, Conn., are architects.

Fire, Jan. 25, destroyed a portion of the automobile body works of the Moroney Body Co., Grove Street, Upton, Mass., with loss reported at $20,000.

George H. Carlson, 176 Lincoln Street, Worcester, Mass., is at the head of a company being organized with capital of $750,000, to establish a local plant for the manufacture of automobile equipment.

The Wheeldon Wire Co., West Brookfield, Mass., plans to rebuild the portion of its factory destroyed by fire Jan. 25, with loss reported at $17,000 including equipment.

The American Car & Foundry Co., 165 Broadway, New York, reports for six months ended Oct. 31 last, net income of $2,107,918, after taxes and charges. This is equal, after 7 per cent on preferred stock, to $1.76 a share on 600,000 no par common shares and compares with net income for the entire fiscal year ended April 30, 1925, of $6,164,104.

South Atlantic States

BALTIMORE, Feb. 1.

TENTATIVE plans are said to be under consideration by the Bowker Chemical Co., 40 West Street, New York, for a new fertilizer manufacturing plant at Baltimore, to cost $90,000 with machinery.

The Pidgeon River Power Co., operated by the Electric Bond & Share Co., 65 Broadway, New York, has preliminary plans for a hydroelectric power development on the Pidgeon River, near Waynesville, N. C., to cost close to $7,500,000 with steel tower transmission system. The Asheville Power & Light Co., Asheville, N. C., C. S. Walters, vice-president, is also interested in the project.

C. W. Behr, care of the Owl Petroleum Co., Inc., 3237 East Baltimore Street, Baltimore, has inquiries out for a steam boiler and accessory equipment.

The office of the Chief of Engineers, Washington, is asking bids until Feb. 25 for a number of 5-kw. portable gasoline electric generator sets, circular 4.

The Cunningham Shale Brick Co., Thomasville, N. C., has engaged A. F. Greaves-Walker, department of ceramics, State College, Raleigh, N. C., to prepare plans for rebuilding the portion of its plant recently destroyed by fire, with main L-shaped building, 50 x 100 x 100 ft., estimated to cost $45,000 with equipment. The machinery installation will cost close to $28,000 and will include pug mill, screens, elevators, hoisting apparatus, dry pans, brick-making machines, electric equipment and engine-generator set. Charles C. Davis is manager.

The Virginia Electric & Power Co., Richmond, Va., plans the construction of automatic power substations, switching stations and other high-tension installation in connection with a proposed transmission line from Richmond to Fredericksburg, Va., estimated to cost $750,000.

Samuel T. Williams, 8 East Lexington Street, Baltimore, mechanical engineer, has inquiries out for a 20-ton locomotive crane, eight-wheel truck, 50-ft. boom, to be used with magnet.

The Zell Motor Car Co., 11 East Mount Royal Avenue, Baltimore, Arthur S. Zell, president, has purchased property at Remington Avenue and Thirtieth Street and plans the erection of a new service, repair and garage building, reported to cost $60,000.

The Warlick Mfg. Co., Newton, N. C., plans the installation of an electric power plant in connection with a proposed textile mill. Benton & Benton, Fidelity Building, Wilson, N. C., are architects and engineers.

The Wilson-Hock Co., City Point, Va., machinery dealer, has inquiries out for a 500-hp. engine-generator set, electric unit to be three-phase, 60-cycle, 550 volts; also for a 5-kva. transformer, 110-220 volts, 60-cycle, with hanger irons, etc., and for a 100-hp. motor, three-phase, 60-cycle, 2200 volts, with starting equipment.

The Water Bureau, Baltimore, V. Vernard Siems, water engineer, is considering the construction of a new pumping plant on Cold Spring Lane with machinery for a capacity of 30,000,000 gal. per day. A portion of a $10,000,000 water fund, recently arranged, will be used for the work.

The Taylor-Parker Co., Water Street and Commercial Place, Norfolk, Va., has been making inquiries for an engine-generator set, 800 kw., three-phase, 60-cycle, 2300 volts, engine unit to be uniflow or Corliss type.

The Elmore Co., Spindale, N. C., operating a local textile mill, is said to be planning the installation of a new power house, including generating equipment, boilers and auxiliary machinery.

The Lexington Ice & Coal Co., Lexington, N. C., has preliminary plans for a new ice-manufacturing plant to cost close to $65,000 with machinery.

The Snyder Hoist & Body Co., 712 Keyser Building, Baltimore, has been organized to manufacture a patented self-unloading truck body. It is in the market for I-beams, channels, angles, shafting and chain.

The Albany Machinery Co., Albany, Ga., recently organized, will operate a general distributing and repair works at 108 Pine Street, covering pumps, windmills, electric motors, farm light and power stations, etc.

The Hackley Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a jaw crusher, No. 3 Champion type preferred; a 50-hp. motor, three-phase, 60-cycle, 220 volts, with rails, pulley and accessories; a quantity of tie plates for 70 and 56-lb. rails, and one 125-hp. self-contained boiler.

Trimble & Fink, 927 Linden Avenue, Baltimore, machinists, have tentative plans under consideration for a new machine shop. John H. Trimble heads the organization.

The R. S. Armstrong & Brother Co., Atlanta, Ga., machinery dealer, has been making inquiries for a jaw crusher, about 42 x 48 in.

The See-More Automatic Signal Light Co., Rialto Theater Building, Washington, has been incorporated with preferred stock of $200,000 and 4000 shares of common stock of no par value, and will put on the market an automobile light signal device. It contemplates having its product manufactured for the present on a contract basis and is prepared to receive estimates from shops equipped to do such work.

Philadelphia

PHILADELPHIA, Feb. 1.

CONTRACT has been let to the Wark Co., 1600 Walnut Street, Philadelphia, by Philip S. Tyre, 114 South Fifteenth Street, architect, for an eight-story and basement automobile service, repair and garage building, 78 x 236 ft., to cost about $450,000 with equipment.

The Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, will erect a one-story machine shop to cost approximately $50,000 with equipment. It has made application to the Maryland State Public Service Commission to issue bonds for $38,000,000, jointly with its subsidiary, the Susquehanna Power Co., for funds for the proposed hydroelectric generating plant at Conowingo, Md., on the Susquehanna River.

The M. Kardon Paper Co., 224 Pine Street, Philadelphia, manufacturer of paper boxes and containers, will soon ask bids on general contract for a four-story and basement addition, 70 x 145 ft., to cost $90,000. J. E. Fieldstein, Otis Building, is architect.

The L. H. Gilmer Co., Cottman and Keystone Streets, Philadelphia, manufacturer of belting, etc., has acquired a factory at Wayne, near Detroit, and will establish a branch plant. Ludwell H. Gilmer is president.

The Pure Oil Co., Lafayette Building, Philadelphia, with headquarters at Columbus, Ohio, has acquired five acres on the Schuylkill River and will erect a new storage and distributing plant to cost about $100,000 with equipment.

The General Electric Co., Witherspoon Building, Philadelphia, has acquired additional land in the vicinity of its plant on Elmwood Avenue for expansion. A new six-story and basement unit will be erected, to be known as unit No. 10, to cost about $450,000.

Frank C. Snedaker & Co., Tioga and Hutchinson Streets, Philadelphia, manufacturers of millwork products, have plans for a two-story addition, 50 x 100 ft., to cost $30,000. The Ballinger Co., Twelfth and Chestnut Streets, is architect.

The H. W. Butterworth & Sons Co., York and Cedar Streets, Philadelphia, manufacturer of machinery and parts, has awarded a general contract to John R. Erbe, 2551 North Sixth Street, for a one-story addition to cost about $17,000.

The Kramer Auto Radiator Works, 246 Perry Street, Philadelphia, manufacturer of automobile radiators and other sheet metal products, will build a new one-story plant, 110 x 120 ft. R. A. Shuman, 202 West State Street, is architect.

The Pacific Steel Boiler Corporation, recently organized under New Jersey laws with capital of 300,000 shares of stock, no par value, will take over and expand the General Boilers Corporation, Waukegan, Ill., manufacturer of low pressure steel heating boilers, etc. The new company, with headquarters at Waukegan, has acquired 15 acres at Bristol, Pa., as a site for a branch plant to cost $300,000 with equipment. Facilities will be provided for employment of about 200. O. T. Nelson is president.

The General Motors Corporation, Detroit, has plans under consideration for discontinuing operations at the works of its subsidiary, the Steel Products Corporation, Lancaster, Pa. It is purposed to sell the property.

The Lehigh Portland Cement Co., Young Building, Allentown, Pa., is arranging for the early construction of its proposed mill at Ocala, Fla., where site recently was secured, to cost $750,000 with machinery. It is completing the construction of its new plant at Sandt's Eddy, Pa., originally a project of the Bath Portland Cement Co., and is expected to have this unit ready for service in about 60 days.

The Creek Forks Coal Co., Trevorton, Pa., recently organized, plans the construction of a new coal washery in the Hunter Station district, to cost $50,000 with machinery. It will be used for reclaiming coal from the creek.

The City Council, Emaus, Pa., is said to be considering the installation of a municipal waterworks to cost about $60,000, including pumping machinery and auxiliary equipment.

Chicago

CHICAGO, Feb. 1.

THE Florida East Coast Railway is in the market for 27 machine tools, a brass melting furnace and 15 electric hoists. The list was issued through Battey & Kipp, consulting engineers, 123 West Madison Street, Chicago. The A. O. Smith Corporation, Milwaukee, is said to be in the market for heavy tool equipment, and the Allis-Chalmers Mfg. Co. is interested in the purchase of two large lathes, a planer and a radial drill, the latter having been reported last week. The Ladish Drop Forge Co., Cudahy, Wis., has bought a 28-in. x 10-ft. lathe and a 36-in. planer.

Actual buying is not heavy and confined almost wholly to medium and small-sized tools. Only a few heavy tools appear on the railroad lists issued to date. Inquiry is active and dealers anticipate a good late winter trade. No price changes are reported and deliveries are said to be easing up. The demand for used machinery is not so active as during the pre-holiday period.

Florida East Coast List

One 16-in. x 6-ft. turret lathe for brass work.
One 44-in. special driving box boring mill with vertical head and side head.
Two heavy-duty vertical drilling machines, 18-in. spindle traverse.
Two single-spindle floor type sensitive drills.
One 3-ft. heavy-duty plain radial drill.
One medium-duty upright drill, 28-in. swing.
One 6-ft. plain radial drill.
One heavy flanging clamp, full pneumatic operation, for 18-ft. plates, 1-ft. vertical movement.
One 100-ton vertical hydraulic bushing press.
One 2000-lb. single-frame steam hammer, 25 in. from center of die to frame, 18-in. under guides to face of die.
One 400-ton carwheel press, 48 in. between tie bars.
Three double-wheel floor grinders with motors.
One 500-lb. power hammer.
One motor-driven pyramid type horizontal plate bending roll for plates ⅜ in. x 10 ft.
One tilting, oil fired, 500-lb. capacity, brass melting furnace.
Two 1½-in. to 6-in. tube cutters.
One 2-in. to 6½-in. superheater flue welder.
One 2-in. to 6½-in. single-cylinder, pneumatic flue swager, 80 lb. air pressure.
One coil winding machine.
One 40-in. insulation cutter, hand or foot operated.
One tapping machine for field and magnet coils.
One 300-amp., two-operator, portable electric welder for 440-volt, three-phase, 60-cycle current.
One wheel rotating service for locomotive valve setting.
Fourteen 1-ton floor-operated electric hoists, with motors for 440 volts, three phase, 60 cycle.
One 2-ton, floor-operated electric hoist with motor, 440 volts, three-phase, 60-cycle.
Bidders are to specify but not quote on alternating current, 440 volt, three-phase, 60-cycle motors for the machine tool equipment specified in this list.

The plant of the Gits Brothers Co., 1900 South Kilborne Avenue, Chicago, was partially destroyed by fire Jan. 27. The company contemplates beginning operations again this week and is going ahead with plans to rebuild that portion of the factory which was destroyed. It manufactures oil cups.

The Toy Tinkers, Ridge Avenue and Leon Place, Evanston, Ill., will build a four-story factory to cost $140,000.

The City Council, Muscatine, Iowa, is preparing plans for an addition to the Municipal Electric Light & Power station for which bonds for $100,000 have been approved.

The Mid City Auto Body & Wagon Works, Inc., 401 North Morgan Street, Chicago, will build a factory, 85 x 125 ft., to cost $40,000. H. M. Garriott, Indianapolis, Ind., is architect.

The Gregg Mfg. Co., Minnesota Transfer, Minn., has succeeded to the business of the Park Mfg. Co., manufacturer of farm and logging sleighs, wood frame harrows, wagon boxes, wagon hardware, ironed singletrees, neckyokes and eveners. The business of the Park Mfg. Co. has been operating since 1890. H. S. Gregg, formerly president Minneapolis Iron Store Co., a heavy hardware jobbing house in Minneapolis, is president and secretary of the Gregg Mfg. Co.; John W. Gregg is vice-president, Ashton Gregg, treasurer, and O. K. Wilcox assistant secretary.

The Northfield Foundry & Machine Co., Northfield, Minn., has been incorporated to take over the business of

the same name which has been conducted as a partnership for five years. It will continue to manufacture woodworking machinery and gray iron castings and may soon erect a new factory, in which event it will be in the market for foundry and machine shop equipment.

The Seaberg Fire Alarm Telegraph Co., 1708 Third Avenue, Moline, Ill., has awarded a general contract without competition to the Axel Carlson Co., 7506 Fifteenth Street, for a three-story plant, 60 x 125 ft., to cost $70,000 with equipment. Severin Seaberg is president.

The Battery Products Co., 5424 South State Street, Chicago, is said to have tentative plans under advisement for a one-story and basement addition to cost $25,000. H. T. Walker is general manager.

The Independent Consolidated School District, Van Meter, Iowa, plans the installation of manual training equipment in its proposed two-story high and grade school to cost $100,000, for which foundations will soon be laid. Thomas, McLennan & Thomas, 527 Seventeenth Street, Des Moines, Iowa, are architects.

The Central States Power & Light Corporation, Davenport, Iowa, has plans under consideration for extensions and improvements in its power plant, including the installation of additional generating equipment and transmission line construction, estimated to cost $800,000.

Fire, Jan. 26, destroyed a portion of the plant of the P. W. Lattner Co., Cedar Rapids, Iowa, manufacturer of hot water heaters and generators, with loss estimated at $50,000. It is planned to rebuild.

The Hendrickson Motor Truck Co., 3538 South Wabash Avenue, Chicago, has awarded a general contract to E. C. Ecker & Associates, 110 South Dearborn Street, for a one-story machine shop, 50 x 175 ft., to cost $25,000. Alfred E. Strobel, 110 South Dearborn Street, is architect.

The Otter Tail Power Co., Fergus Falls, Minn., expects to ask bids early in April for its proposed hydroelectric generating plant at East Grand Forks, Minn., estimated to cost $300,000. A transmission line will be constructed. G. W. Welch is company engineer.

The Western Name Plate Co., 4638 West Huron Street, Chicago, manufacturer of metal name plates, etc., has asked bids on a general contract for a one-story and basement plant, 120 x 120 ft., to cost $60,000 with equipment. H. E. Stevens & Co., 4022 West Madison Street, are architects.

The Township High School Board of Education, La Salle, Ill., plans the installation of manual training equipment in its proposed three-story and basement high school to cost $550000, for which bids are expected to be asked this month on a general contract. Childs & Smith, 720 North Michigan Avenue, Chicago, are architects.

Cincinnati

CINCINNATI, Feb. 1.

JANUARY showed a slight gain over December in the volume of sales made by local machine tool builders. The increased orders in the past two weeks offset the comparatively small business booked earlier in the month. While a number of manufacturers report an upward trend in sales, the decrease in new business suffered by several important builders in January as compared with December is a disturbing factor. Inquiries are numerous, and if local machine tool companies are able to close a normal percentage of them business in February should be brisk.

The outstanding order in the local market calls for a large number of spot welders for the Ford Motor Co. The Baltimore & Ohio bought a 58-in locomotive rod miller, while a machine company in New York took a horizontal boring and drilling machine. The Pennsylvania Car Co., Kansas City, Kan., ordered a No. 3 axle lathe, a 48-in. car-wheel borer and a 48-in. 400-ton wheel press from the Niles-Bement-Pond Co. The A. O. Smith Corporation, Milwaukee, purchased four lathes from a local builder, who also sold three lathes for New York City delivery. The Oakland Motor Car Co. is reported to have closed for four axle-turning machines of special design, the business going to an Illinois manufacturer.

The Cincinnati Planer Co. sold two 36-in. planers in the Wisconsin territory and a 72-in. machine in New England. The John Steptoe Co. booked a 24-in. motor-driven shaper for shipment to New York. A Philadelphia company purchased six Ransom motor-driven grinders, and the Link-Belt Co., Chicago, bought a Newark No. 7 automatic gear cutter. The Schwab Tool Co., Ventura, Cal., is the buyer of a 22-in. Morris geared-head motor-driven lathe. The United States Engineers' office at Jacksonville, Fla., closed for a 24-in. x 18-ft. lathe. A power company in New York and a Kentucky coal company have each closed for a lathe. The Oakland Motor Car Co. bought a 15-in. crank slotter.

Considerable interest has been shown in used machine tools and sales have been very active. The Babcock & Wilcox Co., Barberton, Ohio, purchased six radial drills, while the Worthington Pump & Machinery Corporation closed for a Bement horizontal milling machine and a large thread miller. The Farrel Foundry & Machine Co., Buffalo, and the Bagley & Sewall Co., Watertown, N. Y., have each purchased a 48-in Pond planer. The Electric Dynamo Co., Bayonne, N. J., bought a Pratt & Whitney thread miller. The Aetna Foundry Co., Philadelphia, took three Ransom grinders, and the Chicago Gear Mfg. Co. bought a Gleason 54-in. bevel geared planer. The Philadelphia Gear Works, Philadelphia, purchased a 6-ft. Niles radial drill and a No. 2 Cincinnati miller. The Bigelow Co., New Haven, Conn., purchased a 26-in. Pond lathe. Other used machinery sales include a 5-ft. radial drill for the Harris Structural Steel Co., Philadelphia, a 36-in. hobbing machine for the Ransome Concrete Machinery Co., and a Norton grinder for an elevator company in New Jersey.

Fire completely destroyed the plant of the Boye & Emmes Machine Tool Co., Cincinnati, lathe manufacturer, on Jan. 27, causing a loss estimated at $200,000. Plans for rebuilding have not definitely been decided upon.

The Dayton Whirley Co., Third Street Arcade Building, Dayton, has been incorporated with a nominal capitalization of $500 and will manufacture the Whirley excavating machine. Production of the machine, which heretofore has been manufactured on contract by the F. R. Bailey Equipment & Repair Co., will be increased.

The Portsmouth By-Product Coke Co., Portsmouth, Ohio, has plans for the erection of a tipple at its Freeburn mine near Williamson, W. Va., to cost $250,000. Construction will begin within 30 days.

The Dayton Standard Scale Co., Miami Chapel Road, Dayton, Ohio, has been incorporated with a capitalization of $10,000 to manufacture large heavy duty scales. The incorporation follows the purchase recently of patent rights, machinery and other holdings from the receivers of the company which have operated in Dayton for several years. A. W. Schulman, Harvey Cantor and A. W. Schneble are the incorporators.

Wanner & Co., Fifth and Stone Streets, Dayton, manufacturers of toy novelties and advertising specialties, have purchased a two-story factory, formerly occupied by the Davis Sewing Machine Co. The company, of which John T. Dietz and George D. Wanner are the owners, will occupy the major portion of the building, while the Apex Machine Co., manufacturer of precision tools, will also be located in the plant. Mr. Dietz is president and treasurer of the latter company, and has plans for the erection of an addition to cost $75,000.

The L. M. & G. Co., Burkhardt and Garland Avenues, Dayton, manufacturer of battery boxes, cedar chests and radio tables, has been incorporated for $25,000 and will manufacture motor bus bodies in addition to its present products.

The Glenn L. Martin Co., 16,800 St. Clair Avenue, Cleveland, is reported to be planning the construction of a branch airplane manufacturing plant at the municipal flying field, Brook Park, Columbus, Ohio, with departments for parts production, assembling, etc. Glenn L. Martin is president.

The Sanderson Cyclone Drill Co., Orrville, Ohio, has acquired the engine and tractor division of the Wellman-Seaver-Morgan Co., Cleveland, and will develop this line as a branch of its business. Plans are under way for an addition to the Orrville plant and acquired business will be removed to this location. The extension will total about 35,000 sq. ft. of floor space. The company also purposes to develop production of a new type of gasoline engine for motor buses.

The Ohio Power Co., Canton, Ohio, is said to have preliminary plans for a new unit at its electric generating plant on the Muskingum River, Philo, Ohio, to cost in excess of $500,000.

The Babcock Lumber & Sand Co., Maryville, Tenn., will proceed with a new one-story mill unit, 36 x 200 ft., at its Vose plant in the Alcoa section, to be equipped for the production of finished flooring. All machinery will be electrically-operated. J. P. Murphy is general superintendent.

The Kentucky-Tennessee Light & Power Co., Bowling Green, Ky., will issue bonds for $2,069,700, a portion of the proceeds to be used for extensions and improvements in power plants and system.

The Krystal Rock Stucco Co., 307 Atlas Building, Columbus, Ohio, D. G. Brandt, president, is considering preliminary

plans for an addition to its mill at New Bremen, Ohio, reported to cost $40,000 with equipment.

The Hull-Dobbs Motor Co., Third Street, Memphis, Tenn., will soon begin an addition to its service, repair and garage building, 90 x 150 ft., reported to cost $70,000, with equipment.

The Simplicity System Co., 1105 Volunteer Building, Chattanooga, Tenn., manufacturer of road equipment, asphalt plants, etc., is arranging for a one-story plant, comprising machine shop, structural iron shop and sheet-metal shop, aggregating about 25,000 sq. ft. of floor space. L. B. West is head.

The Jones-Nash Co., Dayton, local representative for the Nash automobile, has plans for a new two-story service, repair and garage building, 80 x 210 ft., to cost $65,000 with equipment. Gebhart & Schaeffer, Keith Building, are architects. Dr. B. W. Jones is president.

The Board of Education, Franklin, Tenn., is said to be planning the installation of manual training equipment in its proposed two-story and basement high school to cost $100,000, for which foundations will soon be laid. George D. Waller, Independent Life Building, Nashville, Tenn., is architect.

The Inland Mfg. Co., Dayton, Ohio., manufacturer of wood products and steering wheels, is having plans prepared for a two-story addition for the manufacture of metal products. Frank Hill Smith, Inc., Winters Building, Dayton, is the engineer.

The Ohio State Department of Public Welfare, J. E. Harper director, Columbus, Ohio, will take bids Feb. 18 for remodeling a power house at the Ohio Hospital for Epileptics at Gallipolis, Ohio. The estimated cost is $80,000. Herbert B. Briggs, Columbus, is the architect.

Pittsburgh

PITTSBURGH, Feb. 1.

THE local machine tool trade is encouraged by the amount of business transacted during January. There have probably been other months in the past few years in which volume has reached a higher level, but there have been no months in which there has been such a steady stream of business. A feature has also been the speed with which inquiries have been closed. The month of February begins with considerable business in sight which gives promise of materializing shortly into orders. The Wheeling Steel Corporation was a recent buyer of three presses and other sheet metal working machinery for its Creek plant. The Aluminum Co. of America is in the market from time to time for tools for its Canadian and South American developments and the trade is expecting much from the Carnegie Steel Co., the Pittsburgh Crucible Steel Co. and the Columbia Steel Co., Butler, Pa.

Prospective business in power equipment in this district looms large, and it is estimated that approximately $1,500,000 worth of equipment is pending.

Sully's Auto Supply Co., 414 Wood Street, Pittsburgh, automobile equipment and accessories, has purchased the four-story building at 422 Wood Street for $145,000, and has leased adjoining property at 420 Wood Street. The structures will be remodeled for new works and the present plant removed to this location.

The William Penn Garage Co., 616 Webster Avenue, Pittsburgh, will soon break ground for a nine-story service, repair and garage building at Wylie Avenue and Tunnel Street, estimated to cost $1,000,000 with equipment. It will have a capacity of 500 cars. The company has disposed of a bond issue of $725,000, the proceeds to be used in connection with the new project. It is expected to have the structure ready for service in July. Joseph Mazer is president, and Frank J. Snyder, secretary and treasurer. Rubin N. Ve Shancey, Pittsburgh, is architect.

H. C. Boyd, Coraopolis, Pa., has plans for the construction of a hoisting plant for sand and gravel service on the Ohio River. Mechanical and electrical equipment will be installed for unloading barges to storage bins.

The Litter Piston Co., Charleston, W. Va., manufacturer of engine pistons, etc., is considering extensions in its plant and the installation of additional equipment.

The Standard Ultramarine Co., Huntington, W. Va., is considering rebuilding the portion of its plant destroyed by fire Jan. 22, with loss of $25,000 with equipment.

The Superb Radiator Co., Youngsville, Pa., has been purchased by J. C. Black, Oil City, Pa., and the assets of the company are being moved to Oil City where a manufacturing building has been acquired for the manufacture of automobile radiators and Fordson clutch controls. The Oil City shop will be in production about Feb. 15.

The American Brown Boveri Electric Corporation, 165 Broadway, New York, has concluded negotiations for the purchase of the plant and business of the Railway & Industrial Engineering Co., Greensburg, Pa., manufacturer of electric railroad apparatus, high-tension switching equipment, etc. The purchasing company has also acquired the Electric Development & Machine Co., Holmesburg, Pa., manufacturer of kindred apparatus, including electric protective equipment. Both plants will be continued in service and will be operated as individual units of the purchasing organization, which recently took over the Scintilla Magneto Co., Sidney, N. Y.; Maloney Electric Co., St. Louis; and the Condit Electric Mfg. Co., Boston. Laurence R. Wilder is president.

The State Road Commission, Charleston, W. Va., is planning for the removal of its plant at Nitro, W. Va., used for the manufacture of metal automobile license plates, etc., to a new site at the same place. It is purposed to enlarge the structure at the new location.

The Central Motors Corporation, Market Street, Wheeling, W. Va., is considering rebuilding the portion of its service, repair and garage building recently destroyed by fire with loss estimated at $175,000, including equipment.

The Bessemer Gas Engine Co., Grove City, Pa., is arranging for the early installation of additional equipment in its new extensions. J. P. Henry is superintendent.

The De Luxe Metal Furniture Co., Warren, Pa., has been organized and financed by the Warren Chamber of Commerce and will manufacture metal shelving and inside furnishings and office furniture including desks. H. B. Stone is president and H. J. Onions will be at the head of the production department. The company contemplates purchasing the former plant of the Gisholt Machine Co., near Warren, and will reequip for its purposes.

Detroit

DETROIT, Feb. 1.

PLANS are being considered by the Duplex Printing Press Co., Battle Creek, Mich., for an addition, 110 x 600 ft., to increase the capacity more than 40 per cent. It will cost about $200,000 with machinery.

The National Ice Co., Detroit, care of G. B. Bright & Co., 2615 Twelfth Street, engineers, will soon begin work on a two-story plant, 115 x 220 ft., to cost about $85,000 including equipment.

The American Electric Corporation, Belding, Mich., recently formed under Delaware laws, will take over the local plant and business of the Belding-Hall Co., manufacturer of refrigtrators and refrigerating equipment. Production of regular products of the company will be continued and arrangements completed for the early manufacture of a new line of electrically operated refrigerators to be known as Electrice. A stock issue will soon be sold, a portion of the fund to be used for additional production facilities. Brinton F. Hall is vice-president.

The Southern Michigan Light & Power Co., Hudson, Mich., has arranged for an increase in capital from $400,000 to $1,000,000, a portion of the fund to be used for extensions and improvements in power plant and system.

The City Council, Ada, Mich., will proceed with the construction of a municipal electric light and power plant to cost $180,000 with equipment.

The Detroit & Michigan Stove Works, 6900 East Jefferson Street, Detroit, will soon ask bids on a general contract for a five-story addition, 82 x 175 ft., reported to cost $130,000 with equipment. It will also erect a one-story addition to its pattern shop, 50 x 140 ft. Plans for both structures have been drawn by Charles Kotting, Dime Bank Building, architect. W. T. Barbour is head.

The Kaneer Co., Niles, Mich., recently formed under State laws, will take over the local plant and business of the company of the same name, with branch plant at Berkeley, Cal., manufacturer of copper store fronts, metal moldings, etc. The new organization has arranged for a stock issue to total $1,180,000, a portion of the fund to be used for expansion. F. J. Plym is president.

The Homer Furnace Co., Coldwater, Mich., has placed its No. 2 foundry and adjoining warehouses on the market and will discontinue service in this division of the plant.

The Hudson Motor Car Co., 12601 Jefferson Street, Detroit, has awarded a general contract to the Gallagher-Flemming Co., 6500 Epworth Boulevard, for a one-story addition to its plant on Waterloo Street, 150 x 340 ft., to cost $150,000 with equipment. R. B. Jackson is president and general manager.

The Chevrolet Motor Co., Detroit, has asked bids on a general contract for a three-story service and repair branch, 150 x 160 ft., to cost $160,000. Albert Kahn, Inc., Marquette Building, is architect.

The Board of Water and Light Commissioners, Lansing, Mich., has approved plans for the installation of additional equipment in the municipal power plant in Moores Park.

The Board of Education, Freemont, Mich., is considering the installation of manual training equipment in its proposed two-story high and grade school to cost $200,000. J. N. Churchill, Pruden Building, Lansing, Mich., is architect.

Buffalo

BUFFALO, Feb. 1.

IN connection with its expansion plans, the American Radiator Corporation, 1807 Elmwood Avenue, Buffalo, manufacturer of steam-heating equipment, has filed plans for another addition on Roseville Avenue, one-story, to cost $30,000.

The United States Rubber Reclaiming Co., 728 Babcock Street, Buffalo, has plans for a one-story steam power house to cost close to $20,000.

The Yawman & Erbe Mfg. Co., Rochester, N. Y., manufacturer of metal and wood filing cabinets and equipment, has plans nearing completion for a three-story and basement addition, 60 x 120 ft., to cost $100,000. Smith, Hinchman & Grylls, Marquette Building, Detroit, are architects.

Fred P. Wittmeyer, 304 South Park Avenue, Buffalo, is said to be at the head of a project to construct a new plant on Reading Street for the manufacture of sash, doors and other millwork products, to cost $45,000 with machinery.

The Kerr Turbine Co., Wellsville, N. Y., has been organized with a capital of $100,000 to take over and expand the local company of the same name with plant on South Main Street. The new organization will develop the present line of turbine engines and affiliated equipment.

The Jordan Paper Box Co., 242 South Salina Street, Syracuse, N. Y., has awarded a general contract to the Valentine & Purchase Co., Syracuse, for an addition to its plant, including improvements in the present factory, estimated to cost $60,000. La Vaute & Muiranen, Herald Building, are architects.

The Crescent Tool Co., Jamestown, N. Y., has acquired the plant and business of the Smith & Hemenway Co., Coit Street, Irvington, N. J., manufacturer of hand tools and kindred mechanical equipment. The new owner will consolidate with its organization. It is understood that the Irvington works will be continued in service, giving employment to about 250. The executive offices will be removed to Jamestown. The acquisition is effective Feb. 1. Karl Peterson is president of the purchasing company, and C. Fred Falldine, secretary and treasurer.

The Board of Education, Corning, N. Y., is considering the installation of manual training equipment in its proposed two-story high school on Kingsbury Street, estimated to cost $350,000. Preliminary sketches are being drawn by Palmer & Rogers, 101 Park Avenue, New York.

The Meyer Wagon Co., Inc., has taken over the business of the Meyer Wagon Works, 216 Elm Street, Buffalo, which has been engaged in the manufacture of ice cream delivery equipment for the past 22 years.

The Buffalo Slag Co., Buffalo, N. Y., has completed plans for a slag plant to be built at Erie, Pa., to replace one recently burned.

St. Louis

ST. LOUIS, Feb. 1.

J. GOLDBERG & SONS, 800 East Eighteenth Street, Kansas City, Mo., operating a foundry and machine shop, are considering plans for an addition to cost approximately $100,000 with equipment.

The W-W Feed Grinder Co., 214 South Wichita Street, Wichita, Kan., manufacturer of grinding machines, parts, etc., has awarded a general contract to the A. B. Hungerford Construction Co., Caldwell-Murdock Building, for a one-story and basement plant, 100 x 265 ft., to cost close to $60,000 with equipment.

The Kozy Klosure Mfg. Co., Wichita, Kan., is considering plans for rebuilding the portion of its plant destroyed by fire Jan. 16, with loss estimated at $100,000, with equipment.

The Southern Ice & Utilities Co., Dallas, Tex., has acquired a group of ice-manufacturing and refrigerating plants and is contemplating extensions and improvements in several, including the Muskogee Crystal Ice Co., Muskogee, estimated to cost $175,000, with eqpipment.

Fire, Jan. 24, destroyed a portion of the two-story building at 2030 Morgan Street, St. Louis, occupied jointly as a factory by the gross Chandelier Co., manufacturer of lighting fixtures, etc., and the Gast Bank Note & Lithographing Co., with loss reported at $20,000, including equipment. It is proposed to rebuild.

The Lexa Ice Co., Lexa, Ark., will begin the construction of a one-story ice-manufacturing plant, 60 x 170 ft., to cost $120,000 with machinery. A cold storage plant will also be installed.

The Planters' Cottonseed Oil Co., Pine Bluff, Ark., is considering rebuilding the portion of its plant destroyed by fire Jan. 20, with loss estimated at $50,000 including equipment.

The Champlin Refining Co., Enid, Okla., has preliminary plans for extensions and improvements in its oil refinery and the installation of additional equipment to cost in excess of $650,000. A new pipe line will be constructed. The company is said to be arranging a bond issue of $2,000,000, a considerable portion of the fund to be used for the expansion.

The Root Refineries, Inc., El Dorado, Ark., will install additional equipment at its plant including cracking machinery for gasoline production.

The Gille Mfg. Co., 1423 West Ninth Street, Kansas City, Mo., manufacturer of metal cans and containers, has acquired additional buildings at Guinotte and Lydia Street, and will remodel for expansion. Additional machinery will be installed.

The Arkadelphia Milling Co., Arkadelphia, Ark., is planning to rebuild the portion of its grain elevator destroyed by fire Jan. 20, with loss estimated at $275,000, including hoisting, loading and other machinery.

J. A. Corbell, Marlow, Okla., is planning to purchase a quantity of machinery for the manufacture of concrete brick and blocks, for installation in a local plant.

The Dixie Mfg. Co., Cameron, Mo., has been incorporated with capital stock of $85,000 to manufacture radio sets and equipment. It has purchased a factory and will be in production by March 1.

Milwaukee

MILWAUKEE, Feb. 1.

BOOKINGS of machine tools by manufacturers during January were moderate and no disappointment is expressed over the fact that the volume of new business fell somewhat below the average of October-December. However, inquiry has increased steadily and prospects for February are considered brighter. Tool builders maintain operations at the peak recently reached, having entered the new year with order books in the best shape at the period of any year in at least four or five.

The Crucible Steel Casting Co., 612 Clinton Street, Milwaukee, is pushing work on its new plant at Eleventh Avenue and the Northwestern tracks, and expects to transfer its operation without appreciable interruption of production by May 1. Two electric melting furnaces will be installed. One furnace is being operated in the present works, which are being offered for sale, with or without equipment. The plant is running full time, with orders requiring capacity for fully six months ahead, according to Albert C. Lange, president and general manager.

The Louis Voell Auto Co., 24 East Division Street, Fond du Lac, Wis., has awarded the general contract to the John Summerfell Co., local, for the construction of a sales and service station, 100 x 200 ft., and 50 x 100 ft., part two stories and basement, designed by A. W. Hoffman, architect and engineer, 86 Wisconsin Street, Milwaukee. The total investment will be in the neighborhood of $100,000. Louis Voell is president and general manager.

The Empire Level Mfg. Co., Milwaukee, has been incorporated with $50,000 capital stock to manufacture mechanics' tools, mechanical devices and appliances and fixtures. The principals are Henry Ziemann and Harry J. Ziemann, who have been engaged in this business at 313 First Avenue, Milwaukee, for several years and are now preparing for material enlargement of plant and business.

The Super-Ball Antenna Co., Green Bay, Wis., has been incorporated with a capital stock of $25,000 to manufacture a patented outside aerial for radio receivers, consisting of a

metal sphere mounted on steel pipe. The device is now in production, but the new corporation plans a largely increased output immediately. The principals include B. E. Colburn, R. W. Fancher and A. L. Cannard, attorney, all of Green Bay.

The Green Bay, Wis., Drive Calk Co. has changed it corporate title to Green Bay Drop Forge Co., and increased its authorized capitalization from $75,000 to $150,000 to provide for expansion of plant and production. It was founded to manufacture key calks for horseshoe replacements, but later developed an extensive business in automotive and implement forgings, specializing in brake assemblies. No construction is in immediate prospect, but the equipment will be supplemented.

The Fuller & Johnson Mfg. Co., Madison, Wis., manufacturer of gas and oil engines, power farm equipment, etc., has rewritten its articles of incorporation and increased its capital stock from $350,000 to $550,000, consisting of 3500 shares of common and 2000 shares of preferred, each with a par value of $100. The scope of the business and output is being extended. Carl F. Johnson is president.

The Acme Clutch Co., Thirty-eighth Avenue and Lapham Street, Milwaukee, manufacturer of power clutches, has incorporated its business without change of title and is preparing to increase its output materially. The principals are Walter E. Geist, E. E. Kopperud, L. E. Geist and Harry Kopperud, who continues as general manager.

The business of Fred Sprinkmann & Sons, 96 Reed Street, Milwaukee, manufacturer of boiler coverings, insulating materials and kindred supplies, has been incorporated as Fred Sprinkmann & Sons, Inc., with a capital stock of $50,000. The ownership is unchanged, being vested in Frederick Sprinkmann, Sr., Arthur C. and Ernest S. Sprinkmann.

The Eagrow Co., 320 Greenfield Avenue, Milwaukee, manufacturer of golf clubs, has changed its name to Ampco Metal Golf Club Co. It makes clubs with heads forged from a special alloy bronze produced by the American Metal Specialty Co., Milwaukee. The plant recently was moved from 79 Mason Street to new and larger quarters on Greenfield Avenue, and additional equipment is being installed for increased output. Theodore Marker is president, and Carl J. Zaiser, secretary.

Gulf States

BIRMINGHAM, Feb. 1.

CONTRACT has been let by R. Borge, 1320 North Alamo Street, San Antonio, Tex., to John Westerhoff, 524 School Street, for a two-story plant, 42 x 120 ft., to be equipped as a wire and metal works. It is reported to cost $40,000. Harvey L. Page, Crescent Avenue, is architect.

The K-V Corporation, 302 South Beach Street, Daytona Beach, Fla., is planning to purchase a quantity of equipment for the manufacture of fire brick, tile products, etc.

The M. & H. Valve Co., Anniston, Ala., manufacturer of iron castings, will begin the immediate erection of its proposed new unit, one-story, to cost $75,000 with equipment. The J. E. Sirrine Engineering Co., Greenville, S. C., is engineer.

The Acme Cement Plaster Co., Quannah, Tex., Charles G. Vestal, head, has tentative plans under advisement for a new local plaster-board mill, 60 x 750 ft., to cost close to $80,000.

The Gulf, Colorado & Santa Fe Railway Co., Union Depot Building, Galveston, Tex., has plans for new shops at its terminal at Cleburne, Tex., comprising a one-story boiler and forge shop, 125 x 517 ft., and one-story flue shop, 45 x 290 ft., to cost approximately $250,000 with equipment. W. J. Smith is company architect.

The Southern Manganese Corporation, Brown-Marx Building, Birmingham, has arranged for an increase in capital from $200,000 to $500,000, a portion of the fund to be used for expansion. The company is reported to make extensions and improvements in its plant at Anniston, Ala., and install additional equipment.

The Polk Steel & Iron Works, Inc., Davenport, Fla., recently organized, will build a new one-story plant for the manufacture of ornamental iron products, including fire escapes, etc., to cost $25,000.

The F. M. Jacobs Foundry & Machine Co., Columbus, Miss., will soon begin rebuilding the portion of its plant recently destroyed by fire, with loss of $25,000 including equipment. New machinery will be installed. F. M. Jacobs is head.

The Harvest Queen Flour Mill, Plainview, Tex., will enlarge its plant and install additional equipment in connection with proposed rebuilding of the main unit, destroyed by fire Jan. 18, with loss reported at $75,000 with machinery and stock. The reconstruction will cost close to $100,000. A. G. Hinn heads the company.

The South Texas Utilities Co., Rosenberg, Tex., plans extensions in its ice manufacturing plant to double the present capacity, to cost $65,000. Considerable additional machinery will be installed.

New interests, headed by P. G. Cannon, have secured control of the Jax Cement Construction Co., East Eighth Street, Jacksonville, Fla., and have plans under consideration for another unit to cost approximately $30,000.

The Board of Public Works, Dallas, Tex., Harry Gowins, water commissioner, is planning the construction of an addition to the pumping plant in the Turtle Creek section, with new filtration plant, to cost $750,000. A special election to vote bonds will be held in April. A list of pumping machinery and auxiliary equipment will soon be arranged.

The Board of Dock Commissioners, Lake Charles, La., is planning the installation of conveying machinery, traveling crane, loading equipment and other apparatus at the proposed new wharf, dock and warehouse, estimated to cost $500,000. Bids will soon be asked. The J. F. Coleman Engineering Co., New Orleans, La., is engineer. H. M. Gallagher, Lake Charles, is resident engineer.

The West Texas Utilities Co., Abilene, Tex., has acquired the electric light and power plant at Junction, Tex. Plans are under way for extensions and the installation of additional machinery.

The Decatur Ice & Coal Co., Albany, Ala., is arranging for the construction of a new ice-manufacturing plant in the vicinity of Second Street with an initial daily capacity of 25 tons.

The City Commission, Gulfport, Miss., plans the installation of pumping machinery in connection with proposed extension in the municipal waterworks to cost about $50,000.

The Broward County Board of Public Instruction, Fort Lauderdale, Fla., plans the installation of manual training equipment in its proposed new school at Hollywood, Fla., estimated to cost $400,000, for which superstructure will soon be placed in progress.

Cleveland

CLEVELAND, Feb. 1.

THE month of January showed a slowing in demand for machine tools as compared with December when business was exceptionally good. The falling off appears largely due to lack of orders from the automotive industry. A local lathe manufacturer reports that its January sales were about 80 per cent of those in December, wholly in single machines or small lots. However, some dealers did only about 50 per cent as much business last month as in the previous month. A fair volume of orders is being figured on and a more active market is looked for in February. The Adamson Machine Co., Akron, Ohio, has purchased a 10-ft. gear hobber and the National Acme Co., Cleveland, a 13-in. Pratt & Whitney lathe.

The equipment of the plant of the Rollins Motors Co., Cleveland, will be offered for sale Feb. 9. It consists of about 75 machine tools.

The Lima Architectural Works, Lima, Ohio, is having plans prepared for a four-story and basement factory. Leech & Leech, American Bank Building, Lima, are the architects.

The City Ice & Fuel Co., Cleveland, will build an ice-manufacturing plant at Albany, N. Y., with a daily capacity of 160 tons.

The Austin Co., Cleveland, will erect a $125,000 fabricating plant in Euclid Village, Ohio. It will be one-story, 30 x 60 ft.

The Market Avenue Realty Co., Canton, Ohio, has awarded contract for the erection of a sales and service garage to be occupied by the Towell-Cadillac Motor Co., Cleveland. It will be two-stories and basement, 88 x 200 ft.

The Portsmouth By-Product Coal Co., Portsmouth, Ohio, has awarded contract to the Link-Belt Co. for a $200,000 coal tipple to be erected at Freeburn Junction, W. Va.

The Cleveland Automobile Co., Cleveland, has had plans prepared for a one-story addition, 120 x 180 ft. Ernest McGeorge, 3030 Euclid Avenue, is architect.

Manual training equipment will be installed in a new high school to be erected in Amsterdam, Jefferson County, Ohio, a contract for which has just been placed. Harrold Fellows, Amsterdam, is secretary of the Board of Education.

The De Luxe Metal Furniture Co., Warren, Ohio, has been organized to manufacture metal shelving and metal office furniture, and has acquired a plant for manufacturing purposes. H. P. Stone is president.

Indiana

INDIANAPOLIS, Feb. 1.

WORK will soon begin on a one-story foundry, 80 x 120 ft., at the plant of the General Electric Co., 1635 Broadway, Fort Wayne, Ind., for which a general contract has been awarded to the Buesching-Hagerman Construction Co., 401 Superior Street. It will cost about $40,000 with equipment. C. H. Matson is superintendent of building construction.

The Interstate Public Service Co., Indianapolis, is considering the rebuilding of the portion of its machine shop at Scottsburg, Ind., destroyed by fire, Jan. 19, with loss of $42,000 including equipment.

The Stutz Motor Car Co. of America, Inc., Indianapolis, is arranging to double the present capacity of the plant in all departments, increasing the present working schedule, tripling approximately the present force, and providing additional facilities. E. S. Gorrell is vice-president in charge.

The Standard Oil Co., Evansville, Ind., will soon take bids for a new storage and distributing plant at Division Street and Bray Avenue, to cost $190,000 with equipment. The work will include a main three-story and basement structure, with one-story machine shop and one-story service, repair and garage building. W. J. Lang is local manager.

The Building Brick Co. of Illinois, Inc., Chicago, care of A. Buckman, 160 North La Salle Street, engineer, is planning to begin work in March on its proposed plant at Brazil, Ind., including power house and machine shop, to cost $400,000 with equipment.

The Board of Henry Township School Commissioners, Akron, Ind., plans the installation of a manual training department in the proposed high school at Akron to cost $90,000, for which plans are being completed by Griffith & Goodrich, 211 East Berry Street, Fort Wayne, Ind., architects.

The Standard Metal Co., Pennsylvania and Georgia Streets, Indianapolis, manufacturer of steel roofing, ridge rolls, conductor pipe, etc., is considering the erection of an addition in rear of present building, to be four or five stories, to cost close to $90,000. A. L. Henry is president. The company recently purchased the main building it is now occupying.

The Board of Washington Township School Trustees, Henry L. Wigger, Landesville, Ind., in charge, plans the installation of manual training equipment in the proposed high and grade school to be erected in Washington Township, Grant County, to cost $75,000. Thomas McGaw, Citizens' Bank Building, Kokomo, Ind., is architect.

The Studebaker Corporation, South Bend, Ind., has awarded a general contract to R. Sollitt & Sons, 5 North La Salle Street, Chicago, for a one-story addition, 125 x 280 ft., for steel spring production. It will cost about $110,000.

The Iceola Corporation, Indianapolis, has been incorporated for $500,000 to manufacture electrical refrigerating units and ice boxes. It has taken over the plant and products of the Valley Engineering Co., Dayton, Ohio, and will move the machinery and equipment of the latter company to Indianapolis. The incorporators are W. N. Thompson, formerly president Stutz Motor Car Co. of America, Addison J. Parry, formerly vice-president Parry Mfg. Co. and Walter Myers.

Pacific Coast

SAN FRANCISCO, Jan. 27.

BIDS are being asked by the Water and Power Commission, 207 South Broadway, Los Angeles, until March 2, for a steam-turbo generating unit with auxiliary equipment for the proposed municipal steam-operated electric generating plant at Los Angeles Harbor; also for three steam boilers and accessories. James P. Vroman is secretary.

Fire, Jan. 23, destroyed a portion of the Plant Rubber & Asphalt Works, Redwood City, Cal., with loss estimated at $200,000 including equipment. It is planned to rebuild.

The F. A. B. Mfg. Co., 1850-62 Seventh Street, Oakland, Cal., manufacturer of pumping machinery and parts, will erect a one-story and basement plant, 60 x 200 ft., to cost $30,000. McWethy & Greenleaf, Telegraph Building, are architects.

The Markey Machinery Co., 85 Horton Street, Seattle, has preliminary plans for a one-story addition, 36 x 145 ft.

The Backus-Brooks Co., Minneapolis, Minn., is reported to have plans under way for the construction of a new pulp and paper mill in the southwestern portion of the State of Washington. The project will include a hydroelectric power development on the Cowlitz River with initial capacity of 100,000 hp. The entire project is reported to cost close to $7,500,000.

The City Council, Chandler, Ariz., has authorized plans for a municipal electric light and power house and will secure estimates of cost. The Weiland Engineering Co., First National Bank Building, Pueblo, Colo., is engineer.

The Warman Electric Foundry Co., Vernon, Cal., recently organized with a capital of $100,000, has awarded a general contract to the Brombacher Iron Works, 1662 Long Beach Avenue, for a one-story foundry, 80 x 160 ft., to cost about $45,000. An electric traveling crane will be installed. The company is headed by G. B. and N. W. Warman, both of Huntington Park, Cal.

The Utah Oil Refining Co., Salt Lake City, Utah, has plans under way for the construction of a new pipe line in the Moab section, about 40 miles, to cost $400,000 with booster stations, etc.

V. C. Suckow, Central Building, Seattle, architect, has completed plans for a three-story automobile service, repair and garage building at 1318 Sixth Avenue, to cost $100,000 with equipment.

Addison-Miller, Inc., Parkwater, Wash., E. J. Heavers, district representative, is arranging for the construction of a new ice-manufacturing plant in this vicinity with initial capacty of 100 tons per day, to cost $150,000 with equipment. The installation will include an endless conveyor belt, icing platform apparatus, etc.

The Board of City Trustees, Orange, Cal., will ask bids soon on equipment for a proposed pumping plant to be carried out in connection with extensions in the municipal waterworks, including two turbine pumping units, gas engine, motors, starters and auxiliary appartus. C. C. Bonebrake is city engineer.

The Northwestern Sheet Metal Mfg. Co., 2206 First Avenue, Seattle, will build a one-story plant at 149-53 West Spokane Street to cost about $18,000.

Canada

TORONTO, Feb. 1.

WHILE demand was confined chiefly to orders for one or two tools, sales during January show a decided improvement over those of the previous month. The automotive industry is again the principal buyer and a steady flow of orders is coming from this source. A strong demand is reported for electrical equipment, and there are also prospects of an increased call for lumber and pulp and paper mill machinery. Second-hand and rebuilt tools are more active and a number of good orders have recently been received for this class of equipment. During the past few weeks inquiries have been received from other British Dominions, which include some fairly large lists.

The two-story machine shop of H. E. Bourassa, 4 Harbor Street, Montreal, was damaged by fire which started in the forge department. The loss is estimated at $25,000.

The Quebec Streams Commission, 59 Notre Dame Street East, Montreal, will call for bids in the spring in connection with water-power development at St. Paulin, Que.

McColl Brothers, Toronto, state that during the year they will enlarge their oil refinery and bring the capacity up to 3000 bbl. per day.

The Spruce Falls Pulp & Paper Co., Kapuskasing, Ont., a subsidiary of the Kimberley Clark Co., Neenah, Wis., will spend about $15,000,000 in the vicinity of Smoky Falls in northern Ontario, on the construction of pulp and paper mills to have a daily output of 500 tons. The Ontario Government, through the Department of Lands and Forests, recently completed a contract for the sale of timber limits to the company on the Mattagami and Ground Hog Rivers. With their tenders accepted the company proposes to start work immediately on the construction of the proposed plant and also the construction of a 50-mile logging railroad from Kapuskasing to Smoky Falls.

Ford City, Ont., is considering the installation of an auxiliary electric plant in connection with its filtration plant. J. F. Foster is clerk.

The American Cellulose & Chemical Co., Drummondville, Que., has arrangements well under way for the establishment of a local plant, and it is estimated that about $7,000,000 will be spent on construction and equipment, while $2,000,000 has been set aside for early working capital and operating expenses.

It is reported that the Hollinger Mining Co., Timmins, Ont., will enlarge its mill to bring the capacity up to 8000 tons per day. Orders will be placed at once for three additional rod mills which will add about 3000 tons to the daily capacity.

The Public Utilities Commission, Listowel, Ont., is contemplating installing a gas engine in connection with a waterworks plant. C. Prouter is engineer.

Western Canada

The ratepayers of Winnipeg, Man., will be asked to vote on the authorization to expend $5,000,000 or $6,000,000 for building a power plant at Slave Falls, Man. J. G. Glassco, is manager of the Winnipeg Hydro System.

Construction has started on an addition to the plant of the Western Steel Products, Ltd., Desautels Street, St. Boniface, Man., to cost $30,000.

The Murdie Machine Shops, Victoria, B. C., will build a shipyard on the local Indian Reserve. Bids are now being called for the erection of machine shops, etc. A large crane will also be installed.

The Calgary Power Co., Calgary, Alta., proposes to spend $100,000 on the installation of a new bank of transformers at its Horse Shoe power plant, according to A. G. Gaherty, chief engineer and managing director.

The Alberni Engineering Works, Port Alberni, B. C., has started additions and alterations to its machine shops and shipyards including the installation of a marine railroad.

The roundhouse, boiler room and six locomotives of the Canadian Pacific Railway Co., at Wilkie, Saskatchewan, were recently destroyed by fire.

The Westminster Iron Works, New Westminster, B. C., is having plans prepared for addition to its plant.

The Manitoba Power Co., Winnipeg, Man., contemplates installing two new turbines in its power plant to take care of power demands in the district.

Foreign

THE Consolidated Hydroelectric Works, Upper Wurttemberg, Germany, is arranging through W. A. Harriman & Co., 39 Broadway, New York, to dispose of a bond issue of $4,000,000, a portion of the proceeds to be used for hydroelectric power development, extensions and improvements in existing plants.

A company has recently been organized in Peru by American interests to construct and operate a cold storage and refrigerating plant in conjunction with a municipal slaughterhouse. A concession has been granted by the Government and it is expected to begin work in the near future. H. Bentley MacKenzie, commercial attaché, Department of Commerce, Lima, Peru, has information regarding the project, while certain data are available at the office of the Industrial Machinery Division, Bureau of Foreign and Domestic Commerce, Washington, reference Peru 35 X.

The American Chamber of Commerce in London, Aldwych House, Aldwych Kingsway, London, W. C. 2, England, has received an inquiry from a local company desiring to get in touch with American manufacturers of tinplate, black plate and steel sheets, to develop a regular source of supply.

The Hsin Hua Trading Co., Woodrow Wilson Street 24, Tientsin, China, dealer and distributor of pumps, tools and kindred mechanical equipment, plans early purchases of additional supplies of this character and is soliciting catalogs and information.

A company has been formed at Melbourne, Australia, to construct and operate a twelve-story automobile service, repair and garage building with capacity of 950 cars. Machine and repair shops will be installed on the main floors. The entire project will cost close to $1,500,000, of which about $70,000, will be expended for equipment. The American Consulate, Haskell E. Coates, vice-consul, Melbourne, has information regarding the project.

Industrial Finance

Orders received by the General Electric Co. for the year ended Dec. 31 amounted to $302,513,380, according to an announcement by Gerard Swope, president. Compared with $238,107,697 for the year 1924, this was an increase of 7 per cent. For the three months ended Dec. 31 orders totaled $78,636,669, compared with $80,009,978 for the same quarter of 1924, a decrease of 2 per cent.

The United States Malleable Iron Co., Woodville Street, Toledo, Ohio, was thrown into receivership on Dec. 31. R. E. Leitch and R. C. Dunn have been named as receivers. It is not known at this time whether or not the company will continue operations under the receivership. I. L. Houghton is general manager and F. E. Rogers, assistant treasurer.

Stockholders of the New Britain Machine Co., New Britain, Conn., have recommended the creation of a new issue of 7 per cent Class A preferred stock to be exchanged for the outstanding 8 per cent preferred shares. They also have recommended the common stock be without par value. With the new financing the company will have no debts and cash and invested capital totaling $13,000,000.

Directors of the Truscon Steel Co. contemplate holding a special meeting of the company's stockholders on Jan. 21 to vote on a recommendation that the company's authorized common stock, $10 par value, be increased from $4,500,000 to $7,000,000 and the declaration of a 6 per cent dividend on common stock, payable to holders of record Jan. 30. It is proposed also that the regular quarterly cash dividend of 3 per cent, payable March 15 to owners of common stock, apply also to the new stock.

The Nash Motors Co. has declared a stock dividend of 900 per cent and $10 a share cash distribution. The company's net profits last year after deducting expenses, reserves, depreciation, State and Federal taxes, as well as write-off on investments, amounted to $16,256,216, equal to $55 a share on the common stock after the first dividend payment of $1,051,309.

Involuntary bankruptcy proceedings have been instituted against the General Metal & Refining Co. of Milwaukee on petition of three creditors, the Standard Metal Co., Louis Arnovitz and Joseph Benech & Co., Inc., all of Milwaukee.

The American Can Co. entered the current year with working capital of $41,918,220, compared with $28,099,898 in 1920, and seasonal borrowings were eliminated. Stockholders at a special meeting, to be held Feb. 9, will be asked to approve a reduction in par value of common stock from $100 to $25 and to ratify a stock dividend of 50 per cent on present common stock. Following the approval of the recommendations of the board, holders of common stock will receive six shares of the new for each share of the present stock now held.

Colonial Steel Co. Changes Capital Structure

A change in the capital structure of the Colonial Steel Co., Pittsburgh, which is expected to mean eventually one class of stock, has been approved by the stockholders. Under the change, in consideration of a stock dividend of 100 per cent in common stock to holders of both common and preferred stock, the preferred stockholders have agreed to new terms which, among other things, give the company the power to retire the preferred stock and provide that hereafter, so long as any shall be outstanding, that stock will not be entitled to more than 7 per cent annually. Hitherto, any dividends declared from accumulated or undistributed profits, after 7 per cent had been paid on both classes of stock, were applicable alike to common and preferred stock and there were no provisions for retiring the preferred stock. The stock dividend doubles the authorized capital. Instead of 12,500 shares of common stock and 7500 shares of preferred stock, both of $100 par value, there will be 40,000 shares of $100 par value, of which 7500 will be 7 per cent cumulative, redeemable, convertible preferred and 32,500 shares of common stock. The preferred stock is callable at $110 and accumulated or unpaid dividends, or can be exchanged share for share for common stock. The stock dividend is payable Feb. 10, to stockholders of record Jan. 30.

Current Metal Prices

On Small Lots, Delivered from Stocks, New York

THESE prices are given for the convenience of small-lot buyers whose requirements do not run into mill-size orders.

Only base prices can be listed in some cases, due to limits of space; other items of a given group are deducible from the base price.

The prices which are quoted below are those at which small lots may be bought, whether from jobbers' or other stocks.

Complete market reports and prices on large shipments from mills will be found elsewhere under "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	7.00c. to 7.25c.
Soft steel bars, base price	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in. base	3.24c.
Steel plates, ¼ in. and heavier	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.30c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.65c.
Toe-calk, ½ x ⅜ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	6.25c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds and hex.	4.00c. to 5.00c.
Squares and flats	4.50c. to 5.50c.
Standard tool steel, base price	12.00c.
Extra tool steel	15.00c. to 18.00c.
Special tool steel	20.00c. to 23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R. One Pass Per Lb.	Long Terne Sheets Per Lb.
Nos. 18 to 20	4.15c. to 4.30c.	5.75c.
Nos. 22 and 24	4.20c. to 4.35c.	5.90c.
No. 26	4.25c. to 4.40c.	6.05c.
No. 28*	4.35c. to 4.50c.	6.35c.
No. 30	4.55c. to 4.70c.	6.85c.

Galvanized

	Per Lb.
No. 14	4.45c. to 4.60c.
No. 16	4.60c. to 4.75c.
Nos. 18 and 20	4.75c. to 4.90c.
Nos. 22 and 24	4.90c. to 5.05c.
No. 26	5.05c. to 5.20c.
No. 28*	5.35c. to 5.50c.
No. 30	5.85c. to 6.00c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

	Standard Steel Black	Galv.	*Wrought Iron* Black	Galv.
½ in. Butt	46	29	4	+19
¾ in. Butt	51	37	11	+ 9
1-3 in. Butt	53	39	14	+ 6
2½-6 in. Lap	48	35	5	+14
7 & 8 in. Lap	44	17	11	+ 6
11 & 12 in. Lap	37	12	3	+16

Bolts and Screws

Machine bolts, cut thread, 40 and 10 per cent off list
Carriage bolts, cut thread, 30 and 10 per cent off list
Coach screws, 40 and 10 per cent off list
Wood screws, flat head iron, 80, 20, 10 and 10 per cent off list

Steel Wire

Base Price† on No. 9 Gage and Coarser	Per Lb.
Bright, basic	4.25c.
Annealed, soft	4.50c.
Galvanized, annealed	5.15c.
Coppered, basic	5.15c.
Tinned, soft Bessemer	6.15c.

†Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	19⅛c. to 20⅛c.
High brass wire	19⅝c. to 20⅝c.
Brass rods	16⅞c. to 17⅞c.
Brass tube, brazed	27⅛c. to 28⅛c.
Brass tube, seamless	23¾c. to 24¾c.
Copper tube, seamless	24¼c. to 25¼c.

Copper Sheets

Sheet copper, hot rolled, 22½c. to 23½c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin Grade "AAA" Charcoal 14x20	Bright Tin Grade "A" Charcoal 14x20	Coke—14x20	Prime	Seconds
		80 lb.	$6.15	$5.90
		90 lb.	6.30	6.05
		100 lb.	6.45	6.20
IC..$11.25	$8.85	IC..	6.65	6.40
IX.. 12.85	10.85	IX..	7.85	7.60
IXX.. 14.40	12.55	IXX..	9.00	8.75
IXXX.. 15.75	13.85	IXXX..	10.35	10.10
IXXXX.. 17.00	15.05	IXXXX..	11.35	11.10

Terne Plates

14 x 20

IC—8-lb. coating	$7.75 to $8.00
IC—20-lb. coating	10.00 to 11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25
Fire-door stock	10.50

Tin

Straits, pig	63½c. to 64c.
Bar	67½c. to 68c.

Copper

Lake ingot	15 c.
Electrolytic	14¾c.
Casting	14½c.

Spelter and Sheet Zinc

Western spelter	9c. to 9¼c.
Sheet zinc, No. 9 base, casks	13¼c.; open, 13¾c.

Lead and Solder*

American pig lead	10¼c. to 11¼c.
Bar lead	12¼c. to 13¼c.
Solder, ½ and ½ guaranteed	42¼c.
No. 1 solder	39¼c.
Refined solder	33c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb	68c. to 72c.
Commercial grade, per lb	30c. to 35c.

Antimony

Asiatic	24c. to 26c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), ingots for remelting, per lb	30c. to 30½c.

Old Metals

Values are generally unchanged and business is on a hand-to-mouth basis. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	11.75
Copper, heavy wire	11.50
Copper, light bottoms	9.50
Brass, heavy	7.00
Brass, light	6.00
Heavy machine composition	8.75
No. 1 yellow brass turnings	8.50
No. 1 red brass or composition turnings	8.00
Lead, heavy	8.00
Lead, tea	6.00
Zinc	5.25
Cast aluminum	19.00
Sheet aluminum	19.00